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Bimonthly.

THOMAS W. BICKNELL, CONDUCTOR.

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Thomas W. Bicknell

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EDUCATION.

No. I.—SEPTEMBER, 1881.

EDUCATION AND SANITATION.

BY JOHN EATON, PH. D., LL. D., COMMISSIONER U. S. BUREAU OF EDUCATION.

IN calling attention to education and sanitation, I shall not attempt any exhaustive treatment of the manifold relations between them.

Every one asks with supreme interest, "How long shall I live, and under what conditions?" The energies of the individual and of civilization are invoked to prolong life and increase its comforts and success.

The story of this struggle for life requires in its rehearsal none of the imagery of poetry: figures tell it in the shortest terms. The last complete census of our own country, that of 1870, shows that over forty per cent of the population die under five years of age. Nearly half of the mourning is over the deaths in these tender years. How large a proportion of the population is ill on any given day has not been ascertained. But as showing the supply or the lack of the comforts of life, Dr. Jarvis, an expert in these statistics, points out that the white population is about evenly divided between those that are self-sustaining and those that are dependent, while of the colored population fifty-five per cent are dependent.

Education and sanitation represent great forces invoked by man in the endeavor to prolong his life and improve his condition, — the one, the science and art of culture; the other, the science and art of health. As terms, they may not always have been present in the vocabulary of the ancients; but the ideas they express, the facts which they include, and the objects at which they aim, are ever present in human endeavors, and are as universal in man's experience as death and sickness and ignorance, which they antagonize.

Man finds for himself, as for all the lower orders of animal and vegetable life, everywhere, over against the law of good, the law of evil; the nerve that tells of enjoyment is the nerve that tells of suffering. The principle of growth may be everywhere applied to pervert or perfect, and in its neglect appears the law of decay. Wrapped in the same bundle are the laws of health and disease. Since impressed with the image of his Creator, and receiving the command, "Be fruitful, and multiply and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth," man, as the crown of this visible creation, has found it possible to bring under control, for his good, all of his own powers, and all of the forces and conditions of nature around him. Slowly, with halting and sometimes with backward step, and generally through devious course, man has reached his present marked degree of facility in commanding the secrets of nature. In the place of the wigwam or cave of the savage he rears the mansion of civilization, ventilated and heated to increase health, promote length of days, inspire his purity, and please his sense of the beautiful. For his food he transforms the crab-apple into the pippin, the bitter almond into the luscious peach, the wild ox into the Alderney or the Durham, the wild sheep into the improved Saxon. He makes the barren soil productive, he transforms the malarial or poisonous conditions of his home into the salubrious and healthful. For clothing he no longer tolerates the leaf of the tree or the rude skin of the animal, but adorns himself with garments wrought by the highest skill from the improved cotton, the cultured merino, the developed silk, and adorned with colors as rich as the famed Tyrian or Venetian dyes. His spiritual, intellectual, and æsthetic aptitudes are supplied by invoking a corresponding change in agencies, objects, and instruments. The resistance to comfort and health offered by time and space he assails with the powers of steam and the velocity of the lightning. In all this transformation he has applied the semi-creative principles of culture, at once so simple and so universal. In his observation and experience he has found a certain uniformity, a certain order of relation of facts, which he has called law; he found the relations of cause and effect, that establishing one condition produced another; he could do this for himself, or he could teach to others the principles which he followed for his own benefit. This is education, which imparts knowledge, and nourishes or trains; beginning with every one of us before we reach the cradle, it cannot end before the termination of this mortal existence. It may be perverted and bad, and hasten human ills; there is education in crime, — indeed, criminals have a life and language of their own, and have attempted the preparation of literature as well as of implements of their business. If th purposes or methods of education are an admixture of what ought and what ought not to be, the results must correspond, and at best can be only partially good. We may conceive education to be wholly good, and yet we rarely find it so in this state of imperfection. It may be wholly bad, and yet it is not often so, even in savage life. The instinct of self-preservation, the pure selfishness of nature, finds out and employs some of the right processes of education or betterment. Education may — nay, must — go on, either by neglect or by intent; human conditions cannot be stationary. Right education for its highest ends adopts the precepts of morality towards man and piety towards God. It practises and teaches conformity to the laws of matter and the laws of spirit. Wherever, in thus carrying forward human progress, it encounters disease of mind and body, or trains in the practice of health, or teaches its doctrines, it enters into relations with the science and art of sanitation.

Just as a right education is a preventive of crime and cheaper than the machinery for its detection and punishment, so is sanitation a preventive of disease and cheaper than the appliances for its cure. This right education should train the child, the adult, and the community in the precepts of sanitation, so that every individual may have secured to him that first requisite of power, labor, and happiness, — a sound mind in a healthy body. Education is false or impotent without the doctrines or training of sanitation; as the natural constitution itself may be healthy or unhealthy, so may that second nature added by education, which we call habit. Put unhealthy treatment to a diseased system, and how soon that system will vanish like vapor! On the other hand, bring up the child of sound mind and body in the knowledge and practice of the principles of health, and what a promise there is for his maturity and vigor!

These doctrines are not new; indeed, they are so old and recur so frequently in literature that the statement of them may seem stale, though required by the exigencies of the day. The philosopher finds them illustrated in all his comparative study of races, nations, and systems of belief. The Jew and Christian note them in the remarkable sanitary code given the Hebrews. Pointing to the restraints it imposes on man's destructive passions and appetites, and the healthfulness of its moderation, to its rules for cleanliness, to its rules for eating meats, and to its classification of things as clean and unclean, they pronounce the descendants of Jacob, — scattered in every nation and every clime, — so full of physical and mental vigor, ever-present indications of the excellences of this code given in the infancy of the race. The Levitical priesthood appears not only as presiding at the altar, over the rites of man's worship of Deity, but as the depositary of learning for their own and the other tribes, and as especially taught in all the knowledge of preventive and curative medicine possessed and practised in their times. The same was true respecting the Egyptians, among whom the Israelites were so long in bondage. Herodotus found the Egyptian priesthood a sort of nobility, whose education included not only instruction in history, national and civil, astronomy, geometry, jurisprudence, and civil polity, but in medicine. Jahn observes that "They were practising physicians, inspectors of weights and measures, surveyors of lands, astronomical calculators, keepers of the archives, historians, receivers of the customs, judges, counsellors of the king, who was himself a member of their order."

Hippocrates ascribed the origin of medicine to the discovery that the sick were injured by the use of food which was beneficial in health. But the progress of the science or art of medicine, whether curative or preventive, has ever been dependent, like that of mathematics or chemistry, or any science or art, upon education. Education must teach, train, and prepare the men that make its discoveries and announce its precepts, and must also teach these to others, and thus disseminate a knowledge of them for general benefit.

Greek history and literature present interesting illustrations of the interweaving of the precepts and practices of education and sanitation. Mitford considered it remarkable that Homer nowhere speaks in plain terms of sickness. He indeed mentions diseases, but as the effect of the immediate stroke of Deity. The marked desire of the Greeks for physical excellence inspired them to lead a course of life conducive to health. Homer has left us many pictures of feasts and relaxations, and once mentions drunkenness as a warning example. Exercise was the delight of his heroes, and excellence in manly sports their pride. The Phæacians exhibit their games before Ulysses, that he may relate

"How in the boxing and the wrestling match,
In leaping and in running we excel."

Grote observes that Greek towns were built "at some distance inland, on a rock or elevation which could not be approached without notice, or scaled without difficulty"; thus furnishing conditions favorable to pure air and good drainage, and to the ideal town of Plato. This philosopher calls attention to the fact that Homer feeds his heroes when they are campaigning on soldiers' fare. They have no fish, though they are on the shores of the Hellespont. Sweet sauces are not even mentioned by him.

It has been held that the laws of Lycurgus, in force seven hundred years, made a race totally different from any other. Plutarch says, "The most masterly stroke of the great Spartan lawgiver was the ordinance that he made that all should eat in common of the same bread and same meat, and of kinds that were specified, and should not spend their lives at home, lying on costly couches, delivering themselves into the hands of their tradesmen and cooks, to fatten them like greedy brutes, and to ruin not their minds only, but their very bodies, which, enfeebled by indulgence and excess, would stand in need of long sleep, warm bathing, freedom from work, and in a word, of as much care and attendance as if they were continually sick." Their public repasts were schools of sobriety and temperance; their most famous dish was the black broth, the relish for which was found in a cold bath in the Eurotas. He provided abundant exercises, and such displays as induced both men and women to care for their health. Mitford emphasizes the fact that he required the women to be specially trained, that their offspring might be vigorous. If they were not, they were exposed on Mount Taygetus. Education was publicly conducted, and aimed at endurance, courage, and strength. Plato declared that those employed in the Spartan secret service "wander over the whole country, by day and by night, and even in winter have not any shoes on their feet, and are without beds to lie upon, and have no one to attend them." Lycurgus, knowing that "a merry heart doeth good like a medicine," prescribed mirth for his people, and the Spartans were ever "famous for mirth guided by wisdom."

Of the laws of the Athenians, as given by Solon, little is written; but Plutarch and Grote, as well as others, call attention to the fact that they reached all departments of private life, and regulated even the walks and feasts of the women. Says Curtius: "In the shady wrestling grounds which spread themselves out in the neighborhood of the city, the young Athenians were to unfold the vigor of their bodies and their minds, and grow to be a part of the state, which demanded men not drilled in Spartan fashion, but fully and freely developed."

Grote remarks that "Pythagoras appears as the revealer of a mode of life calculated to raise his disciples above the level of mankind, and to recommend them to the favor of the gods." "The Pythagorean rule of life," observes Grote, "was distinguished by a multiplicity of abstinences in alimental and other physical circumstances of life, which were held to be of the most imperative force and necessity, so that offences against them were of all the most intolerable."

Temperance was enjoined, exercise required, and superiority of mind and body sought. Their diet was chiefly vegetable, and so spare as to become proverbial. Juvenal intimates that a feast for a hundred Pythagoreans might be provided from a farmer's garden.

Hippocrates appeared as the special apostle of hygiene. He declared that men ought to study the nature of man, — what he is with reference to that which he eats and drinks, and to all his other occupations and habits, and to the consequent results from each. However cautious and feeble his medical practice, he urged attention to diet; and in his treatise concerning airs, waters, and places, enunciates great principles of public health. He speaks of medicine as an imitation of nature; he describes diseases as congenital or endemic, or as traceable to regimen, locality, or seasons; he says that he that would understand medicine must study winds, waters, and localities; he points out the relation of the health of a people to their environment.

Attention has been called to the fact that in the earliest times among the Greeks a person's house was used as his place of sepulture. Later it was forbidden to bury within the walls, at least in Athens. At Megara and Tarentum the graves were in a particular part of the city. At Delos, from the time of Pisistratus, no graves were allowed in sight of the temple; and after the sixth year of the Peloponnesian war, nowhere on the island.

From Plato's works it appears that if any one intentionally polluted the water to be used by another, whether the water of a spring or of a reservoir, he would let the injured party bring the cause before the wardens of the city. He remarked that "When disease and intemperance multiply in a state, halls of justice and of medicine are always being opened." He would "feed the people on such provisions as are required by trained warriors, who are men of temperance and courage." Elsewhere he specifies, "They will feed on barley and wheat, kneading the flour and making noble puddings and loaves. These will be served up on a mat of reeds or clean leaves, themselves reclining the while upon beds of yew or myrtle boughs. . . . Of course they will have a relish, — salt and olives and cheese and onions and cabbages, and other country herbs which are fit for boiling; and we shall give them a dessert of figs and pulse and beans and myrtle berries and beechnuts, which they will roast at the fire, drinking in moderation." Thus he expected the people "to live in peace to a good old age, and bequeath a similar life to their children after them."

It is remarked that the daily bath was by no means so indispensable with the Greeks as with the Romans; but as far as the bath was necessary to cleanliness, its neglect was considered as a matter of reproach. We are told that the public baths were numerous in all Hellenic cities; and in the private dwellings of the better class a chamber was always set apart for the bath.

Physical training occupied a prominent place among the early notions of the Greeks. Plato held that "There ought to be public teachers of gymnastics, receiving pay from the state, and their pupils should be the men and boys, and also the women and girls, who are to know all these things." In education largely physical he saw the continuation of the state; "for good nurture and education implanted good constitutions, and these good constitutions, having their roots in a good education, improved more and more."

Rome, even to-day, in the *cloaca maxima*, or the great sewer, the remains of aqueducts and baths and other monuments, points to the early attention given to the subject of hygiene by the people of the imperial city. Liddell calls attention to the prohibition of burials in the city as early as 260 B. C. From Gibbon we have the affirmation that "All quarters of the capital and all the provinces of the empire were filled with amphitheatres, theatres, temples, porticos, triumphal arches, baths, and aqueducts; all, whether designed for pleasure or utility, were variously conducive to the health of the meanest citizen." Mommsen says that "The bodily exercises of Roman youth advanced from ball playing, running, and fencing to the more artistically developed Greek contests." Another writer observes that "The daily bath, and previous to it strong exercise, were inseparable in the minds of the Romans from the idea of a regular, healthy life." The resources of architecture were brought into requisition in the erection of large buildings for baths. The ornamentations of art were added, and they became the places of amusement. Out of their ruins have been dug some of the priceless statues that adorn modern museums. The Pantheon was merely an entrance to the baths of Agrippa. The visitor is amazed at what remains of the baths of Caracalla, and of those of Diocletian, which alone contained 3,200 marble seats. Even libraries were introduced, and lectures and disputations of philosophers. It is possible that in the more ancient times the use of the cold-water bath was the prevailing one, and persons of simple habits of life adhered to this. "Perspiration and appetite, which earlier generations secured by corporeal exertions and agricultural labor, were attained by a later race by means of sudatoria and hot baths."

Strabo observes, "So plentiful is the supply of water from the aqueducts that rivers may be said to flow through the city and sewers, and almost every house is furnished with water pipes and copious fountains." Again he says, "The sewers, arched over with hewn stones, are large enough in some parts for a wagon loaded with hay to pass through." Another writer states that "Agrippa, when he cleansed the sewers, passed through them in a boat." The Roman military system in many points shows an appreciation of sanitary principles. At one period we find the imperial city divided into four police districts. Among the sanitary duties of the police were the repair of drains, public buildings and places, proper cleansing and paving of the streets, the prevention of nuisances, the supply of the market of the capital with good and cheap grain, the destruction of unwholesome articles of food, and the oversight of baths and public houses. Cæsar proposed to reduce the malarial influences around the city by draining the Pontine marshes.

Pushing our inquiries for the relation of educational and sanitary considerations among the early Christians, we find that some of them were unfortunate in misapprehending the teachings of their great Master. He taught the subordination of the body to the high purposes of the soul, and enforced purity even to the very thoughts. His followers were to be living temples for His spiritual indwelling. They were to withdraw from sinful practices and associations. They were to be temperate in all things. It would seem that here was the basis as well as the highest motive for a correct and complete system of sanitary doctrines in their application to the individual in all his relations as a member of the family or the church or society or the state. Indeed, it is claimed that all high attainments of sanitary science and art in recent years among the nations leading in Christian civilization are in no small measure due to the precepts of Christianity; but unfortunately there were those who early, under the influence of misinterpretation, became ascetics, and would literally pluck out the right eye or cut off the right hand that offended. Persecution favored their retirement to caves, and their separation from the usual and proper conditions of life. The night of the dark ages brought no adequate corrective. Indeed, amid their darkness, although Christian doctrine places cleanliness next to godliness, there appeared those calling themselves Christians, who "looked on personal dirt, like the old hermits of the Thebaid, as a sign of sanctity."

A similar obscuration and perversion came over the doctrines and practices of education. Bacon is often quoted as observing that the past "ever deserves that men should stand upon it for a while to see which way they would go; but when they have made up their minds, they should hesitate no longer, but proceed with cheerfulness"; and I have thought it not unfit to recall so much of the distant past for the better understanding of the present condition of educational and sanitary relations, to the consideration of which our subject now brings us.

The first centuries of the new era were preparing the way for the more recent triumphs of both education and sanitation.

Education, as a central and all-embracing agency in modern progress, employs all beneficial science and art, and comprehends all that belongs to man's right development.

For his rectitude, education enforces the precepts of morality; for his bodily and mental health, the precepts of sanitation. According to Sydney Smith's aphorism, "It is noble to seek truth, and it is beautiful to find it"; and we may add, it is godlike to communicate it. Education must promote the seeking, finding, and dissemination of all truth, sanitation included. Not until the chains were broken from education, and it was given full freedom to make use of all proper resources for man's culture, and to consider the adaptation of methods, subjects, exercises, and aims to the age, temperament, in a word, to the nature and environment of the individual, could education itself appear in its true character, and bring forth its proper fruit. In a sickly or feeble nature, or an unwholesome region, education seeks to produce the conditions of health. It declares to every one, in the language of Fuller, that "Only in a strong and clean body can the soul do its message fitly." We can justly apply the words of Parkes, both education and sanitation appeal to man's universal desire for life and freedom; they both "promote efforts for obtaining the most perfect action of body and mind during as long a period as is consistent with the laws of life." In other words, education and sanitation unite in endeavoring to render growth more perfect, decay less rapid, life more vigorous, death more remote. They join in asking, in the language of the poet, —

> "Who would not give a trifle to prevent
> What he would give a thousand worlds to cure?"

Both appeal to the individual and the state for consideration and action on the principles of prevention. Only recently has hygiene been recognized as a science of great intrinsic value. Now physicians, engineers, architects, philanthropists, moralists, and teachers unite in studying to promote it. Statesmen recognize it as a legitimate subject for legislation and administration.

In this country, from the earliest time, here and there advanced and noble minds have indicated an appreciation of preventive medicine. Dr. Toner points out to us the letters from John Clayton, printed in England, bearing date 1688, giving an account of his several observations in Virginia, in which he treats of the air, water, and soil, and indicates the sanitary effect of drainage and the relation of certain diseases to atmospheric conditions. In South Carolina the records of legislation make mention of an Act to prevent the infection of the small-pox in Charleston, in 1738, and in 1744 of an Act in general terms to prevent the spread of contagious and malignant distempers. But it should be remembered that the medical department of the University of Pennsylvania (our oldest school for the professional training of physicians) was not organized until 1765, that at King's (now Columbia), 1768, that at Harvard in 1782, that at Dartmouth in 1796, and at Transylvania in the early years of this century. Our earliest instruction in medicine drew largely on Edinburgh for its inspiration, its doctrines, and its forms. All are familiar with the recent establishment of hospitals and asylums for the relief of either bodily or mental maladies. The medical profession are to be congratulated on the progress they have made in curative medicine, in spite of the opposition of superstition and ignorance. Humanity is their debtor. Not a few of us here will recall how in our time the public was shocked by the proposition to communicate beyond the limits of the medical profession the elements of anatomy, physiology, and hygiene. A great step was taken, some thirty years ago, when Cutter's works were admitted as text-books into the public schools and academies. Since then the attention, both popular and scientific, given to sanitation has increased in geometric ratio.

The true relation of government to public health can only be properly understood by an educated community. "It is not expected," says Dr. Jarvis, "that any action or power of government can directly cause a man to be healthy; but it can work as effectually for this as it can to make wheat grain or an ox to become fat." The mind of man can imagine and the hand of man can commit hardly any crime which would not involve a violation of the principles of sanitation as well as the precepts of morality. The principles of hygiene are closely interwoven with the rights of person and property. On them rests very much of civil legislation and administration. Benjamin Rush said long ago, "I look for a time when our courts of law shall punish cities and villages for permitting any of the sources of bilious and malignant fevers to exist within their jurisdiction." The late English premier declares, "The health of the people is, in my opinion, the first duty of the statesman"; and Mr. Gladstone is credited with language hardly less emphatic.

Among us the acknowledgment of a governmental relation to sanitation has naturally followed the consideration given by the state to education, and as we have seen, for similar reasons. True, laws have from time immemorial affected life and health, but here a more specific reference is made to that legislation and administration which specially aim at the prevention of disease, and which have resulted in the establishment of boards of health, so as to secure a correct knowledge of the sanitary condition of the people by systems of registration of births, marriages, deaths, and by sanitary inspection. Twenty-two States and a large number of cities have organized boards of health. Their investigations have already reached conclusions of incalculable value to society. Their reports are among the most valuable public documents. The interest these subjects have commanded in medical associations, social-science associations, and this American Public Health Association, furnishes a notable sign of progress. In the form of voluntary action this Association brings together the divers sanitary influences of the country, and tends to harmonize them, and gathers and confirms the results of local effort and organization. Its discussions and papers have done much to disseminate correct ideas of sanitation. Its influence has been specially prominent in devising some fit national action in the interests of public health. Its urgency, emphasized by the appalling destructiveness of the yellow fever, pointing out at once the value and inadequacy of all local effort, called in the comprehensive, co-operative aid of the general government, and we have the National Board of Health crowning all our other civil organizations for sanitary purposes. This board supplements the work of all the State and city boards by contributing to each information collected from all, as well as from the naval, military, consular, and revenue officers of the government, and from the medical and other experts among its correspondents; it also materially strengthens all local efforts to stay pestilence and preserve from disease. Its single function of gathering and disseminating information cannot be duly estimated. It is not creditable to us that there is deficiency or indifference in any portion of the country, but it is gratifying that sanitation is commanding an honorable place in literature,—in newspapers, books, and libraries. Already it has several periodicals devoted to its promotion. Specially notable are the series of "Health Primers," published in a style available to the largest number, treating such topics as "Our Homes," "The Mouth and

Teeth," "The Throat and Voice," "Hearing, and How to keep It," "Long Life, and How to reach It," "Summer and its Diseases," "Winter and its Dangers," "Sea-Air and Sea-Bathing," "Preventable Diseases," "The Art of Nursing," "School and Industrial Hygiene."

After all, we cannot claim to be more than ready for a good start. Much has been accomplished if we are prepared as a people to see what we need, and to supply ourselves systematically and adequately. Sanitation, alike as a science and an art, must be nourished to its utmost vigor. It must bring under observation the facts illustrating every type and condition of soil, of climate, and of population, rural and urban. Escott remarks that there are three kinds of authority universal in England, —*first*, that relating to pauperism; *second*, concerning the highways; *third*, sanitary authority: and eminent authors, while showing the vast progress in securing sufficient and wholesome food and air and better lodgings for the poor and more healthy homes for the rich, affirm that the whole work of sanitation comes short of its full and complete results for want of better understanding and appreciation by the people generally.

Canon Kingsley arrests himself in the midst of a half-plaintive, half-poetic strain to pertinently ask, "Why should not the experiment be tried of teaching the people something about the tissues of the body, their structure and uses, the circulation of the blood, respiration, chemical changes in the air respired, amount breathed, digestion, nature of food, absorption, secretion, structure of the nervous system? Why should not the art of keeping one's self alive and well be a part of technical education?"

Each commonwealth should not only have its State board of health, but local city, county, town, parish, or district board, according to its civil subdivision. Sanitarians, like educators, must believe in and affirm the righteousness of their cause. They alike must seek and accept all co-operative endeavors, whether public or private. There should be clear, definite, and mutual understanding. The friends of progressive sanitation in urging the action of the State must show that they seek not only what is right and legitimate, but what is expedient and promotive of personal and public welfare. It would seem that their arguments must prevail, even if driven to the lowest plane of reasoning. Dr. Farr, in taking an economic view of society, set down the minimum value of the population of the United Kingdom — men, women, and children — as upon an average not less than some £159 a head. No one can fail to see that as you increase the number of healthy persons, or diminish the days of sickness and the periods of dependence, you add so much to national wealth. Admit an epidemic or a plague that can only be kept out by proper legislation and administration, and government action may be fairly held responsible for the pecuniary losses incurred. This class of facts must be accumulated and iterated and reiterated for the benefit of those who object to paying a slight tax for sanitary purposes. The legislation of the several States, and the decisions of the courts, leave no doubt that every child among us inherits the right to an education, the right to proper food, clothing, and shelter, and the necessary medical care when sick. Dr. Jarvis has shown that the strength of the state is the sum of all the effective people, deducting all the personal incumbrances, sicknesses, disabilities, and imperfections. From twenty to seventy is the period of maturity and efficiency. The labors of these fifty years create substance sufficient not only for the support of the worker of that time, but for the early years of youth, and also the ordinary period of decrepitude after seventy.

According to the precepts of political economy, man and nature are the partners in the production of wealth. Nature contributes the raw material, but man discovers, manipulates, and utilizes it, thus contributing a far greater element of value than nature. So far, therefore, as man's part is diminished by reducing the amount or efficiency of his activity, the result is correspondingly reduced.

The humane considerations in behalf of sanitation, as well as the beneficent results of sanitary efforts, should be steadily kept in view, and a knowledge of both universally disseminated.

What a confession was that of the English war minister, that their first army in the Crimean war was lost by unsanitary conditions, and the second saved by the application of sanitary science, returning from those death-stricken regions in better health than it had ever been in barracks at home!

French military and colonial sanitation has a similar illustration. In Algeria, three sets of troops had been decimated, and three sets of colonists swept away by disease; but by well-conducted sanitary work the conditions were altered and a seat of health established in that settlement, the birth-rate rising above the death-rate, children becoming robust and healthy, and the military force being in as good condition as at home.

No less forcible are the illustrations brought from experience in connection with great epidemics. If it was true, as some have asserted, that the great fire of London was necessary to purify the city from the seeds of the great plague, modern sanitary applications have rendered such desolation no longer necessary. Prof. Zidekauer, consulting physician to the emperor of Russia, comparing the

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Sanitarians may well consider what vast agencies for the promotion of health, educational systems and institutions of education may be. Their purpose is to instruct and train every child in the land, not omitting any, whether blind, deaf and dumb, or feeble-minded, if not too weak to be instructed. A most intimate relation exists between sanitation and the administration of education. In boarding schools the entire time and condition of the youth are under the teacher's direction, who should be too well informed to permit any fault. Rarely, however, does any considerable period elapse during which some one of these institutions is not invaded by disease, owing to sanitary neglect, or worse, to sanitary criminality; and the facts and their lessons are withheld from others, lest the attendance in the future should be reduced. How terribly has one of our most excellent colleges been recently stricken, not because the president and faculty were not able and learned men devoted to their work, or because they lacked skill in understanding all the conditions needful to the healthful culture of the promising young men committed to their care by trusting and devoted parents, but solely because the specific responsibility for the grounds and buildings did not enforce proper sanitary conditions! Sanitary subjects should have a larger place in schools of medicine, engineering, and architecture, that all possible may be done to advance the qualifications of experts, and to keep their art and science up to the very advance line of human acquisition. Dr. Bowditch affirmed in 1876, after a correspondence on public or private hygiene with sixty-two of our universities and colleges, exclusive of medical colleges, that, (1) instruction in public hygiene and state preventive medicine is wofully neglected; (2) on private hygiene only about one third of the colleges give any instruction; (3) a full special course of instruction on either of the above themes is almost unknown; (4) but incidentally, in connection with some other not necessarily allied subjects, the topics are treated by about three fourths of the colleges, while one fourth of them do not even perform this small duty in this most important matter. The attention given to the gymnasium and the physical condition of the students at Amherst by Prof. Hitchcock is hardly duplicated in this country.

Next to our medical schools, the universities and colleges for general culture should lead the educational advance in sanitation. In England already the Universities of Oxford, Cambridge, and London are active. Much is expected of the new University of Victoria. Cambridge, not having the legal right to grant a diploma, gives a certificate testifying to competent knowledge of what is required for the duties of a medical officer of health. The examination precedent requires (1) a knowledge of the principles of physics and chemistry, methods of analysis, the use of the microscope in ascertaining the condition of air and water, reference to ventilation, water supply, drainage, construction of dwellings, disposal of sewage and refuse; and (2) a knowledge of the laws relating to public health, sanitary statistics, origin, propagation, pathology, and prevention of epidemic and infectious diseases, effects of overcrowding, vitiated air, impure water, and bad or insufficient food, unhealthy occupations and the diseases to which they give rise, water supply and drainage in reference to health, nuisances, and distribution of diseases.

This attention to sanitation in colleges, universities, and professional schools should assure among our people of culture, in whatever profession or occupation, a fair measure of sanitary knowledge, as had the learned classes in Judæa and Egypt. But all this will be comparatively in vain without instrumentalities for the universal dissemination of its facts, precepts, and benefits. Here especially does education enter into the most cordial relations with sanitation. Education alone has the men and women and instrumentalities by which this work of informing the people can be successfully and adequately prosecuted. Every parent may educate his child as he chooses. Institutions may be freely organized on private or religious or corporate bases; but in order that none of the people may in any sense perish from lack of knowledge, every State and Territory — except Alaska, where there is no law — has a school system, with an executive officer at its head. Each State and Territory has a school code, aiming to put a qualified teacher in every school; and in control over teachers and schools, proper officers as directors, trustees, or superintendent are brought into relation with the executive head for the State. On these systems of instruction over eighty millions of dollars are annually expended. The corps of school officers has never been enumerated. The supervisory and inspecting work is generally compensated, but the great number of this vast army of school officers, generally choice men in their several places, do their work without pay. Rarely can an honest-minded man perform these duties and not find himself growing to do his very best for the precious youth affected by his administration; and as a consequence, laying aside prejudice, unfounded notions, and opinions not warranted in fact, he will not be indifferent to the conditions affecting health. It must be put down to the credit of these officers that they have given American children, as a rule, houses for schools not elsewhere excelled, and they have sought steadily improvement in school architecture and in the qualifications of teachers. But the public school officer may not merely promote instruction, or promulgate rules that should render the conditions healthful: his responsibility is fully met only when such conditions are beyond all question in agreement with the principles of sanitation. In addition to this, he has the power to determine how far subjects of hygiene shall be taught in the several departments and grades, and how far physical exercises promotive of health shall be introduced.

How often the young man or young woman comes through a particular course of training with the least possible knowledge of the simplest principles of hygiene as they apply to the person, the family, the school, or community!

On the theory of the friends of universal education, there would be necessarily from one fifth to one third of the entire population under instruction at any given time during the school period. What a responsibility have school officers and teachers in the entire control of so much of the life, during these formative years, of our entire population! How sedulously should they consider the heating, lighting, and ventilation of the schools, and the seats and desks of the pupils; in a word, all the influences at work! It must be confessed that there are school officers who hold their places in comparative ignorance of the principles of either education or sanitation. As a result, many school-houses have been erected and many teachers certificated without regard to fitness. Under their direction, houses have been built with public money that have no proper provision for air, either in amount or quality. They have allowed schools to receive and communicate diphtheria, scarlet fever, small-pox. They have permitted unhealthy conditions to multiply around schools until from them has gone sickness to desolate neighborhoods. They should be held responsible for all the unnecessary myopy, curved spines, and infection due to their ignorant or negligent administration.

Right principles of pedagogics will accord with right principles of hygiene. School supervision — which has been taking on scientific form among us for the last fifty years, and has been worked with such incalculable effect to promote the universal instruction of our youth in intelligence and virtue, and the improvement of teachers, school-houses, and methods — should be prepared and required to take special account of sanitation. Sometimes it may find essential the addition of the physician or sanitary engineer, or the woman trained in hygiene. As fast as science is admitted into the administration of human affairs, whether educational or sanitary, man's early life and school days will receive special attention. Diseases and other evils will be traced to their causes, and as far as ascertained to be affected by or affecting school life, will be corrected.

The Bureau of Hygiene of the city of Brussels, Belgium, has just sent out a bulletin on infantile hygiene, pointing out that most of the infants who die are the victims of ignorance, routine, and prejudice. The office adds: "In order to diminish the considerable mortality which desolates and impoverishes at the same time the family and society, it is important to disseminate some elementary knowledge of infantile hygiene, so indispensable to mothers, whose solicitude must be relieved by the teachings of science and experience."

Recently a congress of school physicians was held in Berlin, endeavoring in its discussions to apply the principles of sanitation to the principles of pedagogics, and to determine how far the one should be modified by the other. The congress considered (1) whether it is best to cultivate mathematics and languages together or separately; (2) whether there should be afternoon sessions of schools; (3) how far pupils should participate in the work of their parents, what exercise should be taken after dinner, whether there should be any intellectual work after supper; (4) what liberty should be given pupils in the selection of gymnastic exercises, and whether girls should use gymnastic exercises after ten, whether even the most talented and healthy pupils should be allowed to take individual lessons in addition to school work, and whether either the laws of health or of culture would permit pupils during their school attendance to participate in parties, balls, and like excitements.

In the recent international educational congress at Brussels, fifteen papers on hygiene in schools were presented by specialists from Belgium, France, Great Britain, Hungary, Holland, Russia, and Switzerland; still other papers were presented in substance. Long and earnest discussions followed, and certain declarations were made: as for instance, (1) that class-rooms should be lighted on one side only, to the left of the scholars, and so arranged that all the seats should be fully and equally lighted; (2) that for lighting evening schools, lamps were preferred; (3) that the size of a class-room for fifty pupils (the extreme number) should be about thirty feet by twenty-four and a half feet; that attention should be given to sanitation in school supervision and inspection.

In order to promote the statistical researches respecting the influence of schools on the physical development of children, they urged that the example of Belgium should be extended, and for this purpose advocated a system of international exchange of documents and information relating to scholastic hygiene. With regard to kindergarten and infant schools, they considered the importance of preventive medicine and care, and of attention to nourishment. They give utterance in reference to play-grounds, physical exercises, school fittings, and all that concerns the school that may affect the health of its pupils.

Indeed, a very large number of investigators in this and other lands are now specially active in tracing all the relations of education to disease. We are shown how defective light or unsuitable positions may injure sight, how myopy increases with study. Dr. Cohn investigates the size of letters and their proper distance from the eye, and the proper distance of the printed page or the blackboard from the eye. Our attention is called to color-blindness. The students of insanity are making records for its prevention as well as its cure. The attempt is made to study scientifically the psychological development of mind from infancy to age in all conditions. Nor are these inquiries undertaken any too soon, in view of the new problems of life suggested by such facts in our modern civilization as the dying out of families and the increase of insanity.

A great step could be taken immediately by giving sanitation its proper position in our two hundred normal schools, with their fourteen hundred instructors, their forty-one thousand students, sending out annually their thousands of professionally trained teachers. The influence of such an effort would be greatly increased by giving sanitary subjects proper consideration in the hundreds of teachers' associations and the thousands of teachers' institutes held throughout the land.

It may be here remarked, for the credit of schoolmasters, that before boards of health existed, the American Institute of Instruction in 1831 undertook to provide a plan for a village school-house, giving the proper number of cubic and square feet for each occupant, and specifying proper means for ventilation. The next year they declared that among the most prominent defects in the schools of our country was the want of spacious and convenient school-houses. Horace Mann added to his first report on education a supplement in which he discussed, with his usual vigor, school architecture.

The United States Bureau of Education during the last ten years has published articles, chiefly original, on the condition of medical education, past and present, on school-room diseases, on the relation of education to insanity, on the vital statistics of college graduates, on vital statistics derived from the Federal census reports from 1800 to 1860, on free rural sanitaria for the poor in summer, and on vacation colonies for sickly school children, by Drs. Nathan S. Davis, J. M. Toner, Edward Jarvis, Charles Warren, and Prof. Virchow. The Bureau in its annual reports has always paid some attention to school hygiene. It has collected information respecting hospitals and boards of health, for which it has been thanked by the American Medical Association. It has always advocated the establishment and cordial support of State and city boards of health. It has published special pamphlets recently respecting schools of nursing, schools of cookery, and rural school architecture, and stands ready now and hereafter to aid in every proper way the direction of the public intelligence to the conservation and increase of public hygiene.

Bring up to a proper standard the information, the theory, and the practice of those who direct our public schools; advance the three hundred thousand teachers of the land to the full discharge of their duty with respect to sanitation in the teaching and training of our youth, and they would create public sentiment that would leave no excuse for the shortcomings of sanitary experts, either in the breadth or accuracy of their researches and inferences, or the efficiency of their administration. There would be no longer a lack of a satisfactory system of registration of marriages, births, and deaths in any State or Territory. Physicians would not fail to make sufficient record and report of diseases. The community would not fail for opportunities to know as accurately and fully as need be the usual or special causes operating to prevent disease, either mental or bodily. Business and professional men would be warned against the methods and business hours that hasten sickness or bring on decay and death. Apparatus and systems of heating, lighting, and ventilating, so often fostering disease, would be banished from homes, churches, schools, and places of pleasure or labor. The dust, heat, effluvia, or other conditions, so often destructive of life in certain mechanical industries, would be reduced to the minimum of evil, and all possible remedies applied. Gradually there would disappear alike from city and country those regions of filth, over the entrance to which all who approach might fitly read, as Dante read on the infernal gate,

> "All hope abandon, ye who enter here."

There would be sought out and removed those sources of disease that conceal themselves in cleanly appearance, but send out the fatal diphtheria or fever. The communication of contagion by commerce or travel or social intercourse would be understood and prevented. I need not pause to show intelligent religionists or moralists that as sanitation is advanced by educational aids towards its proper position, their assaults on vice and crime will be enforced by arguments drawn from mental and physical health or disease. "Sanitation points to the rum-shop and brothel as the place for the generation and dissemination of contagion. It shows that an ill-drained, overcrowded residence may generate disease and intensify tendencies to scrofula and phthisis"; and morally, adds Dr. Fraser, modesty must be unknown, and decency out of the question.

The public mind in quarters is greatly agitated about the sphere and condition of woman. In all matters of health, no one will question her equal interest with man. Not a few of her own sex in our country have become alarmed at the increase of various forms of nervousness and the multiplication of sickness. Here, therefore, is an unquestioned sphere for the exertions of woman. At the recent sanitary congress at Exeter, speaking of woman as a sanitary reformer, Dr. Richardson, felicitously citing Solomon's description of a good wife, "who worketh willingly with her hands," said, "She is an early riser, and sees that every one has an early breakfast. She knows that where there is poverty there can be neither health nor happiness. She is watchful and busy. 'She looketh well to the ways of her household, and eateth not the bread of idleness.'" He also called to his aid Xenophon's dialogue treating of the household and its economies, in which Socrates and Critobulus are made to concur that the ordering of a household should properly be named a science; in which Socrates speaks of a certain man called the Good, who affirms that while performing his duties as a citizen he could safely be absent, for his wife, whom he had instructed, could order well enough what was wanted there. Dr. Richardson declares that sanitary science must have its true birth in the home. The man is abroad; disease threatens the home, and the woman is on the spot. He would give woman that training by which she shall be enabled to direct domestic life, that she may exert all her influence for the prevention of disease. He believes that this training is simple and practicable. She must be taught the laws of lighting, heating, and ventilating the house, the nature and effect of food, the chemistry of the kitchen, the art of cookery. She must understand and resist those mistakes of marriage which promote disease; she must comprehend the child and its training; she must master domestic economy, and be an educated nurse.

Need I add that the proper, or, if you please, ideal union of education and sanitation would not be expected to annihilate pain or disease or death, but to reduce them to their minimum? The physician would practise preventive as well as curative medicine. His directions would be more intelligently followed, and his labor more cordially rewarded. The approach of new or modified disease or great epidemics would be at once known and speedily antagonized by all the resources at the command of the nation, the state, the city, the family, the individual.

THE LOSS AND RECOVERY OF CLASSICAL MANUSCRIPTS.

PART II.

WILLIAM S. LISCOMB.

MOST of the manuscripts brought to light at the revival of learning were discovered in religious houses or churches. This of course resulted from that earlier phase of mediæval civilization which of necessity threw learning chiefly into the hands of the clergy and monks. Society then, so far as men of ability were concerned, was divided into two classes, — those who entered the service of the church, and those who devoted themselves to politics and the profession of war. In this condition of affairs, "the monasteries," Ginguené has well remarked, "had become an asylum to which not only piety but the simple love of peace, in the midst of that eternal fracas of arms, conducted the majority of men who preserved any love for study."[1] Many of the monasteries contained a *scriptorium*, or copying-room, in which transcriptions of books were made. The amount and kind of work done, however, depended entirely on the temper of the individual abbot, and this in many instances was eminently unfavorable to literature. Even when a considerable degree of enthusiasm prevailed, as in the case of Cassiodorus at Vivariense, the chief attention was given to ecclesiastical writings, the classics occupying a wholly inferior position.[2] About the year 1000 A. D., an intellectual quickening of considerable extent took place, due partly, perhaps, to the introduction of cotton paper into more common use, partly to the influence of Arabic learning, which was then at its height, partly to the elevation of the celebrated scholar and patron of learning Gerbert to the papacy in 999.[3] While the movement lasted, a lively interest in the works of classical authors was manifested. But it was of no permanent duration, and in the course of the next two centuries wholly died out. The rise of the preaching friars, calling to themselves the attention of all Europe, greatly impaired the prosperity of the older orders, among whom chiefly the literary spirit existed.[4] The influence of the crusades, too, was extremely unfavorable to the intellectual activity of the church. The rich vestments, relics, and costly vessels, brought back by the crusaders from the East, introduced new objects of desire to the clergy and monks of the West, and the rage for collecting them soon obliterated the thought of all else. For such paltry trifles the more precious relics of a nobler antiquity were forgotten. These influences, joined with the decline of discipline and the immense increase of wealth in the religious establishments, led to the almost total neglect of literature, and rendered the thirteenth century the darkest and most barren of the Middle Ages. Europe for the time being, to use the language of Heeren, was converted into a boundless desert in which scarcely a solitary flower blossomed here and there.[1] The same, so far as the church was concerned, was practically true of the fourteenth century. During this period the sacrifice of many of the ancient authors took place, and books were thrown aside into garrets and old chests, or buried beneath heaps of rubbish in lumber-rooms and cellars, slowly to corrode with age and neglect, or to be eaten up by vermin. To how narrow a chance they were in this way reduced, may be seen in the case of Æschylus, Sophocles, Athenæus, Lucretius, Hesychius, Varro, Suetonius, Manilius, Catullus, Tibullus, Apuleius, Festus, Cornelius Nepos, Vitruvius, Velleius, Solinus, Arnobius, the "Scriptores Historiæ Augustæ," Vibius Sequester, Martianus Capella, Rutilius Namatianus, Priscian, the "Satires" of Petronius Arbiter, Macrobius's "Saturnalia," Livy's first Decade, Cæsar's "Bellum Civile," Tacitus's "Dialogus de Oratoribus," "Germania," and "Annals," the "Institutes" of Gaius, Cicero's "De Natura Deorum," "De Legibus," "De Divinatione," "Brutus," and "Orator," all the amatory poems of Ovid, Festus's abridgment of Flaccus's "De Verborum Significatu," Varro's "De Lingua Latina," almost all the "Fabulæ" of Hyginus, the "Controversiæ" of Seneca the Elder, the abridgments of Valerius Maximus by Julius Paris and Januarius Nepotianus, Celsus's "De Medicina," Seneca's "Satire on the Apotheosis of Claudius," the "Compositiones Medicamentorum" of Scribonius Largus, the "Silvæ" of Statius, Frontinus's "De Aquis Urbis Romæ," the "Octavius" of Minucius Felix, the "Fragmenta Ulpiani," the "Panegyrici Veteres," Lactantius's "De Mortibus Persecutorum," Firmicius Maternus's "De Errore Profanarum Religionum," the "Ars Grammatica" of Diomed and almost all of Carisius, the "Chronicles" of Sulpicius Severus, the grammatical works of Cledonius, the "Mythology" and "Virgiliana Continentia" of Fulgentius, the legal work "Consultatio" of the time of Theodosius II., and probably the "Argonautica" of Valerius Flaccus. These are each traced back to a single manuscript or archetype which escaped destruction. Had this perished, they would now be included in the list of works hopelessly lost. Similarly, of Tacitus's "Agricola" and the grammatical writings of Donatus only two texts survived.[1]

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[1] Vol. I. p. 44.

[2] Tiraboschi, Vol. III. pp. 33–42.

[3] Muratori, Vol. VII. pp. 109–111, Diss. 43.

[4] Tiraboschi, Vol. IV. p. 128.

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[1] Einl., §§ 144, 172–174.

The utter death of literary sentiment in the monasteries during this age is well shown in the account of Boccaccio's visit to Monte Cassino, near the middle of the fourteenth century: "Desirous of seeing the collection of books, which he understood to be a very choice one, he modestly asked a monk — for he was always most courteous in his manners — to open the library, as a favor for him. The monk answered stiffly, pointing to a steep staircase, 'Go up; it is open.' Boccaccio went up gladly; but he found that the place which held so great a treasure was without door or key. He entered, and saw grass sprouting on the windows, and all the books and benches thick with dust. In his astonishment he began to open and turn the leaves of first one tome and then another, and found many and divers volumes of ancient and foreign works. Some of them had lost several sheets, others were snipped and pared all round the text and mutilated in various ways. At length, lamenting that the toil and study of so many illustrious men should have passed into the hands of most abandoned wretches, he departed with tears and sighs. Coming to the cloister, he asked a monk whom he met, why those valuable books had been so disgracefully mangled. He answered that the monks, seeking to gain a few *soldi*, were in the habit of cutting off sheets and making psalters, which they sold to boys. The margins, too, they manufactured into charms, and sold to women. So then, O man of study, go to, and rack your brains. Make books that you may come to this."[2]

Despite all vicissitudes, however, several of the ancient authors were preserved and to some extent read during the entire period of the Middle Ages. In this class are included pre-eminently Virgil, also Ovid, Lucan, Juvenal, Statius, Horace, Aristotle,[3] Plato, parts of

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[1] See Teuffel under the names of these authors, and Edinburgh Review, January, 1873.

[2] Symonds, pp. 133, 134; Tiraboschi, Vol. V. pp. 178, 179; Ginguené, Vol. III. pp. 14, 15; Longfellow's Dante, note to Par. XXII. l. 74.

[3] On the study of Aristotle in the Middle Ages, see Heeren, Einl., §§ 111, 145, and Muratori, Vol. VII. pp. 171, 174, *seq.*, and 182, *seq.*, Diss. 44. The commentaries on Aristotle by Ammonius in the fifth century, and by Simplicius and Boethius in the sixth, the existence of the Athenian schools of philosophy till the time of Justinian, and the translation of Plato by Boethius, taken with the facts mentioned by Heeren, sufficiently prove the continued existence of these great masters of Grecian thought, though known in the West almost exclusively through Latin translations.

Cicero, and probably Sallust, Terence, considerable portions of Seneca, and a few others.[1]

Besides these, certain works appear at intervals along the barren centuries of the dark ages. The speeches of Cato the Elder were preserved till at least the fourth century. Tacitus existed at the close of this century and the beginning of the next, and again in the ninth, Rudolph of Fulda being apparently the only German or Italian historian of the latter period who was familiar with his works. Livy's first Decade is also known to have existed at the end of the fourth century, but as his works are not quoted after Priscian in the sixth, Niebuhr infers that the lost books were not read during the entire Middle Ages.[2] Cicero's "Pro Flacco" is mentioned by Macrobius about the beginning of the fifth century, and seems to have been imperfect even then.[3] Censorinus's "De Die Natali" is alluded to by Cassiodorus in the sixth, and Dioscorides and the recent writer Marcianus Capella are spoken of a little later, in the time of Gregory the Great.[4] Pliny was known in the seventh century, in the time of Isidore.[5] Charlemagne in the latter part of the eighth is said to have been familiar with "the classical poets,"[6]—a somewhat ambiguous term, though probably limited to those enumerated above. Alcuin mentions as then in the library of York, besides a list of twenty ecclesiastical writers, the works of Boethius, Aristotle, Cicero, Pompeius Trogus, Pliny the Elder (the "Natural History"), and Lactantius; the Christian poets Sedulius, Juvencus, Paulinus, Arator, and Fortunatus; the classical poets Virgil, Statius, and Lucan, and the grammarians Probus, Phocas, Donatus, Priscian, Servius, Euticius, (Eutychius ?) Pompeius, (Festus ?) Commenianus, (Cominianus ?) and "very many others, masters in the art of discourse."[7] It was at this time that the Roman classics began to come into Germany, including, besides several already mentioned, the works of later authors, such as Macrobius's "Saturnalia," Capella's "De Nuptiis Philologiæ et Mercurii," both of them much read in the schools of the Middle Ages, Boethius, Cassiodorus, and Isidore's "Etymology."[8] The "Institutions" of Quintilian, Donatus's "Commentary on Terence," Cicero's "In Verrem," "De Oratore," and "De Republica" were known in Italy in the time of Benedict III., at the middle of the ninth century (855). Of the Quintilian and "De Oratore" only portions were to be found in France, at least in the vicinity of Ferrières.[1] The monastery of Bobbio about the same time contained the works of Cato, (Dionysius?) the poems of Arator, Fortunatus, and Juvencus, and the poetry and letters of Paulinus.[2] In the tenth century Catullus[3] was in the library of the chapter at Verona, though it was soon afterwards lost sight of, and Persius evidently existed at Tegernsee. The so-called "Liber Invectivarum Ciceronis in Sallustium" is spoken of about the same time.[4] At the close of the century the learned Gerbert, afterward Pope Sylvester II., read Cicero's "In Verrem" and "De Republica," was familiar not only with Salust, but also with Cæsar and Suetonius, and took means to secure Manilius's "De Astronomia" and Victorinus's "De Rhetorica."[5] The "Hortensius" of Cicero, now lost with the exception of a few fragments, was extant in the eleventh century at Reichenau, and in the twelfth in a monastery of Western France.[6]

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[1] Symonds, pp. 65, 66.

[2] Westminster Review.

[3] Teuffel, § 166, 27, 1.

[4] Tiraboschi, Vol. III. p. 37; Heeren, Einl., § 56.

[5] Heeren, Einl., § 64.

[6] Ibid., § 55.

[7] Heeren, Einl., § 77, note 1.

[8] Ibid., § 76.

Among the authors read at Paderborn in the eleventh century, besides Horace, Virgil, Sallust, and Statius, occurs the name of Crispus, who must have been one of the orators Passienus Crispus or Vibius Crispus. That it was not Sallust appears from the language, "Crispus ac Sallustius," in which he is mentioned.[7] Priscian, Quintilian, and Cicero were taught at Cambridge on the revival of that university about 1110.[8] Cicero's "De Re Agraria," "Philippics," and "Letters," (but which?) and Aulus Gellius's "Noctes Atticæ" existed in 1150.[9] Petronius is conjectured to have been entire at that time, as some of the lost passages are quoted by John of Salisbury. In 1212 the cathedral of Novara possessed Boethius, Priscian, the "Code" of Justinian, the "Decretals," and the "Etymology" of Isidore.[10] Later in the thirteenth century, Roger Bacon was well acquainted with Cicero and Pliny the Elder, as well as Seneca, Horace, and Ovid.[11] The monastic library of Ramsay at the same time contained Aristotle, Arrian, Boethius, Claudius, (but which out of the dozen or more who bore this name?) Dionysius, (the so-called works of the Areopagite, or Dionysius Cato?) Donatus, Horace, Josephus, Justin, Lucan, Martial, Macrobius, Orosius, Ovid, Plato, Priscian, Prudentius, Seneca, Sallust, Solinus, Terence, and Virgil.[12] Giovanni Villani, who visited Rome in the jubilee of 1300, read there Valerius

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[1] Heeren, Einl., §§ 91, 93; Ginguené, Vol. I. p. 74; Muratori, Vol. VII. pp. 84, 85 Diss. 43; Maitland, p. 50.

[2] Muratori, Vol. VII. p. 69, Diss. 43.

[3] Teuffel, § 211, 9.

[4] Maitland, p. 504.

[5] Heeren, Einl., § 101; Muratori, Vol. VII. p. 111, Diss. 43.

[6] Teuffel, § 173, 5, 2.

[7] Maitland, p. 141.

[8] Heeren, Einl., § 130.

[9] Maitland, pp. 175, 176.

[10] Symonds, p. 128.

[11] Heeren, Einl., § 147.

[12] Merryweather, Bibliomania in the Middle Ages.

Maximus, and the same historian was one of the authors that helped to fire the enthusiasm of Rienzi.[1] Bartolino da Canullo, who on the death of Giovanni de' Buonandrea in 1329 succeeded him as professor of rhetoric at Florence, yearly read through Cicero twice with his pupils, beginning after the feast of St. Luke. This, Tiraboschi thinks, was the "Rhetorica ad Herennium," then attributed to Cicero, or the "De Inventione," as the "De Oratore" could scarcely have been known at that time.[2] Petrarch, besides the works discovered by him, possessed several orations of Cicero and at least a part of the "Academica." He borrowed the "Philippics" and "Pro Milone" from Lapo da Castiglionchio, who appears to have found them, and the "Tusculanæ Disputationes" from Cratto of Bergamo, who seems to have had the same good luck in the case of the latter.[3] Mention is also made by him of Ennius and Valerius, but whether by the latter is meant Martial or Valerius Maximus is uncertain.[4] Cicero's "Letters" are sometimes said not to be alluded to between the time of Lupus of Ferrières in the ninth century and their discovery by Petrarch in the fourteenth, and from this fact their extreme rarity is inferred. The inference is doubtless correct, though, as we have already seen, isolated traces of them actually do occur during this period.[5] Petrarch also possessed three Decades of Livy, the first, third, and fourth, and in spite of all his efforts could find no more.[6]

These remarks are strictly applicable only to Latin authors and the West. Greek literature, it is true, had perished from Italy several centuries before, though the language continued to be spoken by the rude, common people in the south of the peninsula. A similar state of ignorance prevailed throughout Europe. In the East, however, despite all vicissitudes, neither language nor literature was ever lost, but scholars of greater or less renown flourished during the entire period of the Middle Ages.[7] The royal college of Constantinople lent its patronage to learning;[8] and although this was abolished and its library burned during the iconoclastic fanaticism of Leo, a brilliant restoration took place in the following century under the celebrated Photius.[1] This was carried still further by the learned Michael Psellus in the eleventh century, and by Eustathius and his contemporaries in the twelfth. Schools were founded and reformed; the works of ancient authors were collected; the poets, orators, historians, and philosophers were studied and commented upon.[2] The revival of Greek letters in Italy, indeed, was merely an importation of Byzantine learning and its subsequent development in the hands of native scholars. Hence, we cannot speak of the Greek writers who were restored at the age of the Renaissance as having been lost in the same sense as the Latin. They had through various vicissitudes disappeared from the West, but they were all the while known and studied in the East, first in the monasteries, afterwards in the public schools of learning, and were merely shipped thence to Italy.

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[1] Ginguené, Vol. II. p. 275; Symonds, pp. 145, 146.

[2] Tiraboschi, Vol. VI. p. 935. In regard to the works of Cicero mentioned at any given time, it is often impossible to speak, as their titles are not always given. Certain of his writings, however, probably the rhetorical, were used in education, and that no doubt during the entire Middle Ages. The compilations of Boethius, Priscian, Donatus, and Cassiodorus were nevertheless more common. Symonds, p. 66. The same uncertainty frequently applies to other authors whose names alone are mentioned.

[3] Tiraboschi, Vol. V. pp. 159–162; Ginguené, Vol. II. p. 426.

[4] Tiraboschi, Vol. V. p. 141.

[5] Teuffel, § 170, 5.

[6] Ginguené, Vol. II. pp. 397, 398.

[7] Muratori, Vol. VII. p. 59, Diss. 43.

[8] Heeren, Einl., § 26.

The movement which began with Petrarch and Boccaccio in the fourteenth century, and was carried on by Coluccio Salutato, Palla degli Strozzi, and others, culminated in the enthusiasm of the fifteenth. A true sense of the value of antiquity had at length taken hold on the minds of secular scholars. The desire to possess new works led them to institute careful search for manuscripts, and the intellectual torpor of the religious orders threw the work almost wholly into their hands.

In 1409 Leonardo Bruni discovered a fine manuscript of Cicero's "Letters" at Pistoia, but the real leader in this great movement was Poggio Bracciolini, the celebrated scholar and papal secretary. Called to attend the Council of Constance in the retinue of John XXII., in 1414, he undertook two years later a journey to the monastery of St. Gall, where he had been informed a large quantity of books existed. Here, to his infinite delight, he found the entire "Institutions" of Quintilian, the first three books and half the fourth of the "Argonautica" of Valerius Flaccus, and the "Commentaries" of Asconius Pedianus on eight orations of Cicero. They were lying in a cellar at the bottom of a tower, foul with dust and age. Up to this time there seems to have existed in Italy no copy of Quintilian except the wretched codex discovered by Petrarch at Florence. The joy of Poggio found expression in a celebrated letter. "I verily believe," he wrote, "that if we had not come to the rescue, he [Quintilian] must speedily have perished. For it cannot be imagined that a man magnificent, polished, elegant, urbane, and witty could much longer have endured the squalor of the prison-house in which I found him, the savagery of his jailers, the forlorn filth of the place. He was indeed right sad to look upon, and ragged, like a condemned criminal, with rough beard and matted hair, protesting by his countenance and garb against the injustice of his sentence. He seemed to be stretching out his hands, calling upon the Romans, demanding to be saved from so unmerited a doom. The books, you must know, were not housed according to their worth, but were lying in a most foul and obscure dungeon at the very bottom of a tower, a place into which condemned criminals would hardly have been thrust."[1] In the monastery of the monks of Clugny at Langres, Poggio also found Cicero's oration "Pro Cæcina," and in various religious houses of France and Germany six others, namely, "De Lege Agraria contra Rullum," "Ad Populum contra Legem Agrariam," "In L. Pisonem," "Pro Rabirio Pisone," "Pro C. Rabirio Perduellionis Reo," and "Pro Roscio Comœdo."[2] These are now in the monastic library of S. Maria Fiorentina at Florence, with the exception of the last three, which have been torn from the volume. At Monte Cassino he discovered, lying forgotten amid the dust, Frontinus's "De Aquis Urbis Romæ," and all the eight books of Firmicius's treatise on "Mathematics," and obtained them to copy. At Cologne he unearthed the "Satires" of Petronius Arbiter, having previously secured a small fragment at Berlin. The Cologne manuscript, nevertheless, must itself have been imperfect, as the works of Petronius are only a heap of fragments at the present day. He also found the "Eclogues" of Calpurnius, Vitruvius's "De Architectura," Priscian's "De Arte Grammatica," Celsus's "De Medi cina," Aulus Gellius's "Noctes Atticæ," the "Silvæ" of Statius, Eusebius's "De Temporibus," the "Astronomica" of Manilius, Lucius Septimius, Flavius Caper, Eutyches, and Probus. Aulus Gellius, however, may very probably have been known at this time: a codex of the fifteenth century is still in the Wolfenbüttel library,[3] and it is probable that the work was read about the time of Poggio's discoveries. From its character, too, it would naturally be much prized during the Middle Ages.

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[1] Gibbon, Chap. LIII.

[2] Heeren, Einl., §§ 84, 103–106.

With the aid of Bartolommeo da Montepulciano, Poggio discovered Silius Italicus in 1417, Lactantius's "De Ira Dei" and "De Opificio Dei," Vegetius's "Epitoma Rei Militaris," Nonius Marcellus, Ammianus Marcellinus, Lucretius's "De Rerum Natura," Columella's "De Re Rustica," Festus's "De Verborum Significatu," and several works of Tertullian. According to Voigt the discovery of Vegetius, Festus, and probably Silius Italicus and Lucretius, which was made at St. Gall, was due to Bartolommeo alone, who, spurred on by Poggio's successes, pursued investigations on his own responsibility. The latter, nevertheless, has generally got the credit of them.[1] Of these authors Silius Italicus, at least, had probably been unknown for centuries. His works were read by Vibius Sequester at the end of the fourth century or beginning of the fifth, but were forgotten during the Middle Ages, and apparently not in the possession of Petrarch. About the same time a manuscript of Cicero's "Letters to Atticus" was discovered at Constance, but by whom is not stated. The work, however, can hardly have disappeared so soon after the time of Petrarch. Similarly a copy of the "Eclogues" of Calpurnius and Nemesianus, and a part of Petronius were found in Germany a few years later, and sent to Matthias Corvinus, king of Hungary, by Taddeo Ugoletti.[2] The Verrine Orations of Cicero were discovered at the same place, and through the influence of Poggio and Leonardo Bruni transferred to Italy.[3] During the period of the Council of Constance, Justin's abridgment of Pompeius Trogus, as we still possess it, was discovered in Spain by the Cardinal of Pisa and sent to Italy. A manuscript containing this work, with date of 1405, is now in the library of S. Maria Fiorentina.[4]

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[1] Symonds, pp. 135, 136.

[2] Montfaucon, Vol. I. pp. 417, 418.

[3] Ebert, Zur Handschriftenkunde, Vol. II. pp. 76, 77; Scriptores Latini ad Usum Delphini, *Aulus Gellius*, p. 33.

About 1425, Gherardo Landriani, Bishop of Lodi, while searching in the cathedral of that place for certain ancient privileges, found buried beneath rubbish in an old chest a codex containing Cicero's "De Inventione," "De Oratore," "Brutus," and "Orator," and the "Rhetorica ad Herennium." All were written in characters of such antiquity that no one in Milan could read them. Cosmo of Bergamo, however, deciphered and transcribed the "De Oratore," and Flavio Biondo the "Brutus," and from these copies were made and spread over Italy. The "De Oratore" had existed previously to this, but in an imperfect state. The manuscript was subsequently lost, and its contents remain to us only through copies.[5] About the same time Salvianus's "De Providentia Divina" was found in Germany by Gregorio Corraro.[6]

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[1] Shepherd, Life of Poggio, pp. 98–101; Tiraboschi, Vol. VI. pp. 178–183; Ginguené, Vol. III. pp. 281–283; Symonds, pp. 134–140; Vespasiano, Vite di Uomini Illustri, Vita di Poggio, in Vol. I. of Mai's Spicilegium Romanum; Teuffel, § 315, 5; Voigt, Wiederbelebung des Classischen Alterthums, p. 137.

[2] Tiraboschi, Vol. VI. p. 187.

[3] Vespasiano, *loc. cit.*

[4] Voigt, p. 134; Montfaucon, Vol. I. p. 417.

[5] Tiraboschi, Vol. VI. pp. 181, 182; Ginguené, Vol. III. p. 286; Symonds, p. 140; Teuffel, § 169, 3, 2; Vespasiano, p. 618.

[6] Tiraboschi, Vol. VI. p. 182.

Previous to 1429 only eight comedies of Plautus were known, namely, the "Amphitruo," "Asinaria," "Aulularia," "Captivi," "Curculio," "Casina," "Cistellaria," and "Epidicus." In that year Nicholas of Treves, who was employed in Germany to receive moneys due to the pope, sent to Rome twelve more; these were the "Bacchides," "Mostellaria," "Menæchmi," "Miles Gloriosus," "Mercator," "Pœnulus," "Pseudolus," "Persa," "Rudens," "Stichus," "Trinummus," and "Truculentus." These are all that have come down to us, some of them in a very imperfect state.[1] The manuscript falling into the hands of Cardinal Orsini, that prelate churlishly locked it up from the learned, and would not allow even Poggio to copy it, though found chiefly through his influence. At length Lorenzo de' Medici induced Orsini to send it to Florence, where it was transcribed by Niccolò Niccoli. His copy is still in the library of St. Mark in Florence, while the original is preserved in the Vatican. A similar incident happened to the manuscript of Tertullian, which Poggio had unearthed at Monte Cassino and which had likewise come into the possession of Orsini, the interference of Lorenzo securing this also for the learned world. In the sixteenth century two other manuscripts of Plautus were discovered, but they supplied nothing new.

Guarino da Verona, though at what date is not said, is reported to have discovered the poems of Catullus in a garret, covered with dust and almost destroyed. He restored, corrected them, and put them in shape to be read, with the exception of a few passages which were too much effaced to be deciphered. Tiraboschi is uncertain whether Guarino was the discoverer, or only the corrector of this codex. The works of Catullus, indeed, have had rather a checkered career. A copy of the single archetype, now lost, from which they have come down to us, was made in the tenth century or earlier. This was read by the French monk Rather, Bishop of Verona, in the library of the chapter in that city in 965. It is said to have been in a very corrupt state. Nothing more was heard of it till the beginning of the fourteenth century, when it was refound, and subsequently read by Petrarch. Twenty years afterwards it again disappeared. A copy of it made in 1375 is the earliest and most valuable manuscript of this author which has reached us. This would seem to indicate that it had once more come to light about the time of Petrarch's death. Since that period it has been hopelessly lost.[2]

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[1] Shepherd, *loc. cit.*; Teuffel, § 86; Tiraboschi, Vol. VI. pp. 182, 183; Ginguené, Vol. III. p. 283.

[2] Ginguené, Vol. III. p. 261; Tiraboschi, Vol. IX. pp. 1464, 1465; Teuffel, § 211, 9.

Later in the fifteenth century Porphyrio's "Commentary on Horace," and the "De Re Coquinaria" attributed to Apicius,[1] were discovered through the efforts of that munificent friend of learning, Nicholas V. In 1457 the sole manuscript from which have been preserved Tacitus's "Germania," "Dialogus de Oratoribus," and the fragment of Suetonius's "De Grammaticis et Rhetoribus," was found at the monastery of Hersfeld and brought to Italy by Henoch of Ascoli,[2] perhaps in a copy made by himself. The principal manuscript of the "Histories" of Tacitus was written at Monte Cassino between 1053 and 1087, but when it was discovered is not apparent. The first six books of the "Annals," long regarded as lost, were brought to light in the monastery of Corvey, in Westphalia, in 1508, and being carried to Rome came into the hands of Cardinal de' Medici, afterwards Leo X. The codex is now preserved in the Medicean Library in Florence. The last third of the "Annals" is also from a Medicean manuscript, the same which contains the "Histories" just mentioned.[3] The story that Sulpicius Severus incorporated in his own history certain of the lost portions of Tacitus and then destroyed the original, rests on no authority which can command our belief. A similar charge has been brought against Leonardo Bruni, — that supposing himself to be in possession of the only copy of Procopius's Greek history of the Gothic war, he translated it into Latin and published it as his own. This charge is neither affirmed nor denied by Tiraboschi, who merely alludes to it as having been made by Mazzucchelli. Ginguené, however, contents himself by calling the work a translation or rather imitation of Procopius.[4]

No one of the period of the Renaissance deserves greater praise for the discovery of manuscripts than the Florentine scholar Niccolò Niccoli. Although he himself seems not to have engaged in actual search, he furnished means, information, and enthusiasm in that important work to all the scholars of his time. According to Vespasiano, Tertullian and Cicero's "De Oratore" were found through his efforts and at his own expense. This may refer merely to the cost of bringing them to Florence, as otherwise it seems inconsistent with what has already been said. Learning that a complete manuscript of Pliny's "Natural Histories" existed at Lübeck, he did not rest content till he had seen it conveyed to Florence.[5]

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[1] Tiraboschi, Vol. VI. p. 212.

[2] Teuffel, § 329, 4.

[3] Teuffel, § 329, 4; 332, 5; 333, 4; Heeren, Einl., § 92; Shepherd, p. 104.

[4] Tiraboschi, Vol. VI. p. 1021; Ginguené, Vol. III. p. 277.

[5] Vespasiano, p. 618; Symonds, pp. 178–182.

The works of Propertius, a manuscript of which was possessed by Petrarch in 1374, seem after his death to have disappeared, and to have remained unknown for over half a century. In the time of Gioviano Pontano they were rediscovered under the casks in a wine-cellar, falling to pieces with dampness and age. The interest awakened by them, in the opinion of Barth who published an edition of Propertius a century ago, led to the institution of more careful search and the subsequent bringing to light of other copies of the work.[1] In 1433, Giovanni Aurispa discovered at Mayence a manuscript of the "Panegyricus" of Pliny the Younger, from which all extant copies have been chiefly derived.[2] The "Itinerarium" of Rutilus Namatianus was found in 1494, but where or by whom is not mentioned by Teuffel.[3] About the year 1500 the "Letters" of Pliny the Younger, which previous to that time had existed in a very imperfect state, were brought from Paris by Fra Giocondo Veronese.[4] Velleius Paterculus was unearthed at the monastery of Murbach in Alsace, by Beatus Rhenanus, in 1515.[5] About 1620 the largest fragment of Petronius Arbiter which we now possess, containing the "Cœna Trimalchionis," was found at Trau in Dalmatia. The manuscript bears date of 1423, and on its publication by Marino Statilio, in 1664, excited a violent literary quarrel throughout Europe, certain scholars denouncing it as a forgery. Its genuineness, however, was soon afterwards established and is now admitted.[6]

The works of Livy, of which we possess only about half a decade more than was known to Petrarch, have been the object of unwearied but fruitless search. Various wonderful stories of their discovery, however, appeared from the fifteenth to the seventeenth century. They had been seen now in Denmark, now in Dacia, now in Norway, now in Arabia, now in the Hebrides, now in Bremen, now in the Sultan's library at Constantinople, now in the Escurial library of S. Lorenzo, now made up into raquet-bats for tennis, of which the artisan had more than twelve dozen still on hand. Yet, according to the stupid narrator of this stupid tale, the scholar who discovered them had not wit enough either to remove the parchment or to copy the text contained on it. These worthless accounts need not be dwelt upon. They may be read entire in the first volume of Tiraboschi.[7]

Of the discovery of many manuscripts of the Latin authors, it is impossible to speak from any works now at hand. In a large number of cases, it is probable that no statistics have been preserved. As in the earlier centuries, however, we have proof of the existence of a few at given times, though when and by whom obtained it would be difficult to say. A codex of Lucius Florus with date of 1398 exists in the library of S. Maria Fiorentina, which would seem to indicate that it was among those possessed by scholars during the entire period of the fifteenth century. As the work was much esteemed in the Middle Ages, it may never have been lost. A manuscript of Cicero's "De Finibus Bonorum et Malorum," written in 1406, is in the same library, and also Macrobius's "Saturnalia," written in 1461.[1] The manuscript of Propertius found at Trau, dated 1423, contains also Tibullus, Catullus, and Sappho "Ad Phaonem," and we know that the two former were imitated by Politian, Landino, Marullo, and others in the second half of the fifteenth century. A codex of Cicero's "Tusculans," of 1428, exists at Dresden.[2] Apuleius, Lucan, and the "Commentaries" of Cæsar were published at Rome in 1469,[3] and the "Commentaries" of Servius on Virgil's "Bucolics" at Florence in 1471.[4] Dionysius Cato's "Disticha de Moribus ad Filium" was extensively used as a text-book in the schools of the Middle Ages, and was highly praised by Erasmus. In the fifteenth century over thirty editions were printed.

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[1] Scriptores Latini Delph., *Propertius*, Vol. I. pp. 3, 4; Teuffel, § 241, 5.

[2] Teuffel, § 335, 12.

[3] § 447, 1 and 4.

[4] Tiraboschi, Vol. VI. p. 188.

[5] Teuffel, § 273, 5.

[6] Montfaucon, Vol. II. p. 758; Teuffel, § 300, 2; Nisard, Collection des Auteurs Latins, *Pétrone*, pp. iv., v.

[7] Pages 451-456.

The revival of Greek as well as Latin learning in Italy began, as we have already seen, with Petrarch, though he himself did little in its service beyond awakening enthusiasm in the minds of others. Previous to his time the works of Greek authors were known to Western scholars only through the medium of Latin translations. In 1363, however, he obtained in Venice, whither they had been brought from the East, several Greek codices of works till then unknown in Italy, among them a fine manuscript of Sophocles. The movement thus commenced was carried forward with zeal by Boccaccio, the latter boasting with just pride that he was the first who, at his own expense, brought Homer and other authors back to Italy, whence they had departed centuries before.[5] This feeling reached its height when the Byzantine professors began to come into Italy at the close of the fourteenth and beginning of the fifteenth century. From that time Greek and Latin authors alike were sought for, read, and interpreted. About 1390, Guarino da Verona visited Constantinople to study in the school of Manuel Chrysoloras, and on his return brought back with him two chests filled with manuscripts. On the way he was overtaken by a storm at sea, and only one of these survived. It is related that the scholar landed with hair whitened by grief at his loss.[1] In 1423, Giovanni Aurispa brought from Venice to Florence two hundred and thirty-eight manuscripts, among them the history of Procopius; the poems of Callimachus, of Pindar, and of Oppian; the Orphic fragments; the commentaries of Aristarchus (or Eustathius) on the Iliad; all the works of Plato, of Proclus, of Plotinus, of Xenophon, and of Lucian; the histories of Dion Cassius, Diodorus Siculus, and Arrian; the geography of Strabo, and many others hitherto unknown in Italy, or at least very incomplete.[2] In the number seems to have been the fine manuscript containing seven tragedies of Sophocles, six of Æschylus, and the "Argonautica" of Apollonius Rhodius, which about this time came into the hands of Niccolò Niccoli, and is mentioned with such delight by Ambrogio Traversari[3] in a letter to that celebrated Florentine. Other works were obtained by Palla degli Strozzi, among them Plato, the "Cosmography" of Ptolemy, the "Lives" of Plutarch, and the "Politics" of Aristotle, the latter previously unknown in Italy.[4] Filelfo came back similarly laden in 1427,[5] and the various scholars who resorted to Constantinople to study the language generally returned with rich supplies of books from the stores existing there. Thus, before the capture of the city by the Turks in 1453, it is conjectured that all the great works of Grecian genius then in existence were transferred to Italy.[6] A little later the "Institutes" of Theophilus were brought to light by Politian, and afterwards commented upon and published by the Dutch scholar Zuichm.[7] The "Ethiopica" of Heliodorus are said to have been picked up in the street by a common soldier in the sack of Ofen in 1526.

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[1] Montfaucon, Vol. I. p. 418.

[2] Ebert, Vol. I. p. 173.

[3] Heeren, § 42 (body of the work).

[4] Symonds, p. 369.

[5] Tiraboschi, Vol. V. pp. 161, 162.

The establishment of printing-presses at Rome, Naples, Bologna, Ferrara, Milan, and above all, of the Aldine press at Venice, placed copies of the classics within the reach of all who desired them. Instead of the enormous prices paid for books when each manuscript was slowly transcribed by hand, Musæus was sold for less than twenty-five cents, and Theocritus for less than fifty. Each volume of the octavo Aldine edition of Greek and Latin authors brought about the latter sum, which is less than half of what works of the same quality would cost to-day.[1] The settlement of texts and the reduction of chaotic manuscripts to a state in which they could be read and appreciated, closed the brilliant service of Italy to the literary world, and inaugurated that new era whose light it is our good fortune to enjoy.

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[1] Tiraboschi, Vol. VII. p. 174; Symonds, p. 141; Heeren, § 23.

[2] Tiraboschi, Vol. VII. p. 175; Ginguené, Vol. III. p. 264; Heeren, § 23.

[3] Ambrosii Camaldulensis Epistolæ, Lib. XV., Ep. I., contained in "Veterum Scriptorum et Monumentorum, etc., Collectio," Tom. III. (Paris, 1724).

[4] Symonds, p. 166.

[5] Tiraboschi, Vol. V. p. 175.

[6] Symonds, p. 141.

[7] Tiraboschi, Vol. VI. p. 851.

In more recent times, chiefly in the present century, several important restorations of works previously regarded as lost have been made by the deciphering of palimpsests, in which the writings of classical authors had been erased to make room for Biblical transcriptions, or ecclesiastical treatises. The use of these *codices rescripti* undoubtedly grew out of the dearness of writing materials. Parchment was above the reach of many, and papyrus had become rare and costly after the conquest of Egypt by the Saracens in the seventh century, the manufactories at Alexandria having then been closed.[2] In these circumstances, when a new work was to be made, the manuscripts least valued were often washed, scraped, and prepared to be written on anew. The statements frequently indulged in by reputable writers, representing the mediæval copyists as regularly destroying the classical authors to fill their places with ecclesiastical disquisitions and worthless lives of saints, are far from just. The fact is that any work which was at hand and could best be spared, no matter what its nature, was taken for this purpose. If it is true that the classics were often sacrificed, it is also true that even Biblical manuscripts did not escape, and that ecclesiastical works were sometimes erased to make room for the secular literature of Greece and Rome.[3] In addition to this, so far as can be inferred from the palimpsests yet discovered, no work seems to have been thus destroyed, unless it was already in so imperfect a state as to be thought of little value.

The length of the present article forbids us to enter into any discussion of palimpsest literature; and indeed, the elaborate and easily accessible article in the "Encyclopædia Britannica" renders such a course unnecessary. We may mention, however, the principal works which have thus been recovered. These are a portion of the ninety-first book of Livy, fragments of several orations of Cicero and Symmachus, part of the "Vidularia" of Plautus, almost all that we possess of the rhetorician Fronto, a great portion of the long-sought "De Republica" of Cicero, the "Ars Rhetorica" of Julius Victor, the "Institutes" of Gaius, the "Annals" of Granius Licinianus, several of the old commentators on Virgil, fragments of the "Theodosian Code" and of the ante-Justinian civil law, important parts of Polybius, Diodorus Siculus, Dionysius of Halicarnassus, Appian, Dion Cassius, Iamblichus, Dexippus, Eunapius, and Menander of Byzantium. It is by no means impossible that other lost works of classical authors may still be lurking behind the text of unexamined palimpsests, and that future investigations will yield us treasures equal in value to those which have already been discovered.

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[1] Symonds, p. 381.

[2] Muratori, Vol. VII. p. 79, Diss. 43.

[3] See the list of palimpsests in the Wolfenbüttel Library, mentioned by Ebert, Vol. I. and those discussed in the Encyclopædia Britannica. So, too, Symonds, p. 129.

*THE TEACHER'S WORK IN THE DEVELOPMENT OF MENTAL AND MORAL POWER.**

BY N. A. CALKINS.

LET it be distinctly understood that the purpose of this paper is to consider only that part of the teacher's work in education which specially pertains to the development of the pupil's mental and moral powers, leaving aside the acquisition of knowledge as one of the aims of teaching.

Vegetable life exists in the unexpanded bud; but that life awaits the developing influences of warmth, light, air, and moisture, before its unfolding power is manifested through the delicately formed leaves and the beautifully tinted blossoms, which charm the eye and send forth their fragrance through all the air around.

Physical power exists in the slender muscles of the young child; but that power must await the developing influences that come to it through nourishing food, fresh air, and proper exercise, before it can manifest itself in those acts which are the result of physical strength.

Mental power exists in the untaught and untrained mind; but that power does not manifest itself until those influences which are adapted to develop its capacities of action reach it through the several senses, and cause the mind to act upon things external to itself, and thus to produce mental strength.

Moral power, notwithstanding all the aid furnished by that innate guide which reminds us of the right and warns us of the wrong, must be developed to activity by the influences that surround us and act on the emotions. The moral power is made strong by entertaining right feelings and repeating good acts until they become fixed habits.

As in proportion to the extent of the favoring influences of light, warmth, air, and moisture, will be the completeness of the development of the bud into a healthy leaf, or into a productive blossom; as in proportion to the proper use of nourishing food, sunlight, and air, and the employment of exercises appropriate to the development of the several muscles, will be the degree of physical strength attained; so in proportion to the extent and activity of those developing influences which reach the mind through the several senses and lead it to habits of careful attention to things, actions, and its own thoughts, will the mental and moral strength become so developed as to control the individual, and exert upon all around that power which is the result of education.

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* Read before the National Educational Association, at Atlanta, Ga, July, 20, 1881.

The teacher can best attain the control of that power which comes through education, by the observance of the laws of mental growth and due attention to the *art of teaching*. Furthermore, the proper development of this power is chiefly due to the right influences that are brought upon the mind by the work of the teacher; therefore the degree of its strength and the extent of its influence will depend upon the methods of training that are employed and upon the skill displayed in the use of them.

The laws of mental growth may be ascertained and the art of teaching understood by means of the science of education. This science, therefore, becomes a guide for the development of mental and moral power. The science of education consists in a knowledge of those principles of psychology that account for the manner by which the mind gains knowledge. Its foundation extends down to the laws of our being and growth. It embraces the principles of physical, mental, and moral actions, and all suitable means for the proper development of the human being. *It is a standard by which methods of education may be tested.* As a science, it tells us *what* education is, and *why* it is what it is. It treats of the nature of education, of its relations to mind and matter, and to the laws of our being.

To aid us in the better understanding of the character of that developed power which the teacher's work should secure for his pupils, let us first go to Nature and observe how she proceeds in teaching. While attempting to describe Nature's processes of training her pupils, I shall take the liberty of using, in part, the language of Joseph Payne, late professor in the College of Preceptors, of London.

"The child takes notice of objects and actions, manifests pleasure or pain in connection with them, and indicates a desire or will to deal in his own way with the objects, and to take part in the actions." We also observe that the child increases his bodily strength by unceasing movements, seemingly made for the sake of the movement, and as if this exercise constituted his very life; and we observe, further, that the same movements are made over and over again, and that thus the muscles and nerves learn to work together, and that physical power is the result. In a similar manner the impressions communicated to the mind through the organs of sense excite those organs to activity, and thus cause them to acquire that facility by which the impressions conveyed "grow from cloudy to clear, from obscure to definite, by dint of endless repetition of the functional act." This exercise of the organs of perception brings the child into contact with the properties of matter, and initiates him into the mysteries of hard and soft, hot and cold, heavy and light, sweet and sour, and also into the many varieties of shape and color which objects present. Such are some of the conditions and activities of the child, when a pupil of Nature, seeking knowledge by his own unaided efforts. He is simply teaching himself under the influence of Nature, and this self-teaching develops his physical and mental powers.

"Long before the teacher, with his apparatus of books, maps, globes, diagrams, and lectures, appears in the field, the child has been pursuing his own education under the direction of a higher teacher than any of those who bear the technical name. He has been learning the facts and phenomena which stand for words and phrases in the great book of nature, and has also learned some of the conventional signs by which those facts and phenomena are known to his mother-tongue.

"Nature's earliest lessons consist in teaching her pupils the use of their senses. The infant, on first opening his eyes, probably *sees* nothing. A glare of light stimulates the organ of sight, but makes no distinct impression upon it. In a short time, however, the light, reflected from objects around him, impinges with sufficient force upon the eye to impress upon it the images of things without; the perception of the image is duly transferred to the mind, and thus the first lesson in seeing is given. When the same image is repeated to the mind, the child learns to recognize its form as a whole. Nature presents the child with material objects, and things already made, or done, as a whole, not in parts or elements. The child has no choice as to the place to begin in getting knowledge of them, and must learn things as they are presented. Nature ignores altogether, in her earliest lessons, the synthetical method, and insists on the pupil employing the analytical."

The child-pupil takes hold of objects within his reach, conveys them to his mouth, knocks them against the floor, and thus discovers differences between them, and by performing such experiments gratifies, instructs, and trains the senses of sight, touch, taste, smell, and hearing. The young child sees a bright and beautiful object close at hand. Nature whispers, "Touch it; find out what it is." He puts his fingers into the flame and burns them. Not being quite sure of the cause of the pain, he tries the experiment again, and learns an important lesson in the art of living.

"During all this time, who has taught the child? Nature, — the child himself, — practically they are one. She has given him no rules, no laws, no abstract principles, no formula, no grammar of hearing, of seeing, walking, or talking; she simply furnished the materials, and gave the faculty, and supplied the occasion for its exercise, and her pupil learnt to do *by doing*. This is what Nature, the teacher, did. Nature furnishes knowledge by object-lessons, and she trains the active powers by making them act. She has given the capability of action, and she develops this capability by presenting occasions for its exercise. Action, action, is her maxim of training; things, things, are her lessons. She adopts much repetition in her teaching, in order that the difficulty may become easy, and 'use become second nature.' In physical training, 'use legs and have legs' is one of her maxims; and she acts analogously in regard to mental and moral training.

"She teaches quietly. She does not continually interrupt her pupil, even when he blunders, by outcries and objurgations. She bides her time; and by prompting him to continued action, and inducing him to think about what he is doing, and correct his errors himself, makes his very blunders fruitful in instruction. She does not explain the difference between hard and soft objects, but says, 'Feel them.' Between this fact and that she says, 'Place them side by side, and mark the difference yourself.' And generally she says to her pupil, 'Don't ask me to tell you anything that you can find out for yourself.' She mingles lessons in physics, language, morality, all together. Her main business seems to be the training of faculty, the development of power."

Having briefly considered Nature's processes in education, let us now examine some of the modes of procedure by the teacher when the child enters the school-room, that place above all others which should supply him with the very best opportunities for developing his mental powers, and for getting real knowledge, — knowledge that will be useful because it is adapted to assist him in the performance of life's varied labors; and valuable because it is the means of developing the powers of mind to increased ability for meeting every responsibility and discharging every duty that may come upon him.

When the teacher receives the pupil from Nature's hand and leads him into the school-room, what is done to continue that development which Nature had begun so well? Does the teacher take up the great work at the point to which Nature had carried it, or rather led the young pupil, and conduct him onward in the same royal road? I leave this question to be answered by your own experiences, — each for yourself, — while I inquire, What were your first lessons in school? Did those lessons have any relation to the things that you had learned from Nature, — from the products of the field, the trees of the forest, the fruits of the garden, the activities of the shop, and the characteristics of animal and vegetable life? Were the powers that you had begun to develop by your own efforts in getting knowledge made still stronger by your earliest lessons in the school-room? Did you ever discover any possible relations between the names of the letters of the alphabet, or between those meaningless syllables, a-b ab, b-a ba, b-e be, b-i bi, b-o bo, b-u bu, — and the spoken language that you learned to use before you crossed the threshold of the school-room? Impossible! for not even the *echo* of sense could be heard in the sounds of such syllables.

Did your first lessons in school furnish answers to the child's oft-repeated questions, "What is it?" "What is it for?" Did your first lessons in geography lead you to observe more carefully the hills, the valleys, the streams, ponds, and towns in the vicinity of your home, and thus prepare you to comprehend the features of other places and countries which you had not seen? Did your lessons in spelling cause you to remember words chiefly by their position in a given column, or by means of a chance association with the preceding word? Were you told to learn rules in arithmetic first, and then to apply them to your examples? Did you ever puzzle yourself by trying to find some rule that would enable you to work out a question similar to the following: What would twenty-five pounds of beef cost at twelve cents a pound if one third of it was bone? But I need not hold up these interrogative pictures of the past: your own remembrances of early school scenes will enable you to continue this review. And it is barely possible that some children now in school may be familiar with similar experiences, and thus be able to furnish you the opportunity for observing the deadening influences of such exercises on the mind.

Perhaps some one who has no regard for Nature's teaching may say, "It is no concern of ours to teach in school that which an observant, an intelligent child would learn out of school." In reply, it may be said with greater force that it is our duty to train every child in school in such a manner that he will learn from nature, *out* of school, because he has acquired a taste for such knowledge by means of his lessons *in* school. Furthermore, it is our duty to teach him *how to learn*, and also to direct him to that which is important to be learned.

In order to set forth in a clearer light what is the legitimate work of the teacher in the *development of mental and moral power*, after the pupil enters school, I will endeavor to explain some of the terms employed in describing that work, and will state a few of the principles of education on which it should be based.

Teaching implies the proper guidance of the learner to the sources of knowledge, and training him in the manner of getting and of using knowledge properly. Learning is self-tuition; teaching is superintending the processes of learning.

Training, in education, implies exercising the powers of mind in such a way as will give facility to its acts, and thus increase the quickness in perceiving, the readiness in remembering, accuracy in reasoning, and skill in doing.

The art of teaching implies skill in using proper methods, in accordance with the principles of education. Bacon said, "Art is man's work added to Nature's work." In teaching, art means the supplementing and continuing the work of development and education that is begun by Nature.

A principle of education is a general truth gained by an analytical investigation into the nature of the child as a thinking being. It is a law of the mind and a rule of its action, and should be a guide to the teacher.

Development, in teaching, signifies a laying open of the subject by degrees, so that the pupil shall discover the idea, the fact, or the principle to be learned. The development, expansion, or growth takes place with the idea, the thought, and the power of the mind; not with the things, nor the words of the lesson. *Ideas* may be developed; *words* must be given to the pupil. The *meaning* of words may be developed by enlarging the ideas which they represent.

Cramming, in teaching, is the opposite of developing. It is an imposition of ready-made results upon the child's mind. It makes the pupil's mind a passive recipient of matter forced into it, but does not increase real power. Cramming has nothing in common with the art of teaching, and it is condemned by the science of education and by experience.

Among the important principles of education which intimately relate to the development of power are the following: —

The action and reaction between the external stimulants — material objects — and the mind's inherent powers constitute the processes of natural education. The influence of things upon mind, and of mind upon things, educates the child.

The mind, in its early stage of gaining knowledge of things, attends first to the whole; during later stages, it subdivides the whole into its parts, and from particular facts infers general truths. It discovers facts from analysis, but transmits them to others by synthesis. The teacher should follow this natural order, leading the pupil to the fact by analysis, but requiring him to show by synthesis that he has gained it.

Repeated exercises of bodily organs give ease of action and produce habits. Proper exercise of the mental powers gives clearness of perception and certainty of knowledge. Proper exercise of any bodily organ or mental or moral power increases its strength.

Right methods of education make the pupil an active *doer*, not a passive receiver. The mental acts by which knowledge is gained are acts of the learner. It is what he does for himself — his personal experiences — that educates him, and not that which is done for him. The teacher cannot think for the pupil any more effectively than he can sleep, eat, or walk for him. The teacher can only *induce*, stimulate, and awaken thoughts and desires that will lead the pupil to acquire knowledge. The true function of the teacher is that of a stimulator and guide of the learner, so that his work shall result in a systematic building of knowledge into the mind. He ascertains the need of the pupil, awakens in him a desire to satisfy it, then leads him to the sources of supply, and teaches him to help himself, both from nature and from books.

Ideas must be formed in the mind, and words given to represent them, before they can be expressed or communicated to others. The child learns by observation, examples, and practice; not by precepts, rules, or theory. Precepts and rules aid in remembering that which is learned by observation and practice.

Unknown objects and words can be illustrated and explained only by well-known objects and words; therefore the teacher should start from that which is well known to the learner, and proceed to the kindred unknown which constitutes the matter to be learned. By way of explanation, it may be added here that this early training of the child's powers by means of the surrounding, familiar objects and acts prepares him for understanding facts relating to kindred matters, which the prolonged experiences of others have learned from nature. These experiences having been tested repeatedly and formulated into certified facts, truths, and science, should be presented to the pupil at the proper time, as the result of the labors of past generations, and as a shorter course than that by which the first learners attained the present state of knowledge.

It belongs to the teacher's work to divide the difficulties of the subject into proper steps, and thus enable the pupils to surmount them one by one. It is also his duty to point out to them the facts which should be learned *first*, and then those that ought to succeed in their proper order.

Since activity is a prominent characteristic of childhood, and since the child likes to try to do what he sees others do, the teacher should provide examples of doing which may be imitated by the young learner. In every lesson, where it is practicable, let the pupils be given something to do with their hands, and required to describe that which is done.

To aid in the development of mental power, put questions on each lesson in several different forms, yet make them definite. Shape each succeeding question with reference to the answers previously given, and also to the point to be gained. Do not attempt to draw from a pupil by questions what he has never taken in. See that the pupil has had the opportunity of gaining the knowledge before you ask him to show it.

Among the most important matters requiring the teacher's attention, for the development of power, is that of *training pupils to do exactly what they are asked to do, in every school exercise;* no more, no less. It will cultivate habits of proper attention, of quick and accurate understanding, and train them to follow directions correctly, and to obey orders fully. Such habits become the corner-stone of excellent discipline, — the key to success in maintaining good order.

Power is developed by unconscious tuition; therefore each teacher's own life-work should be worthy of imitation by his pupils. All his acts, as well as his words, should be truthful. Promptness, neatness, painstaking, politeness, and kindness may be effectively inculcated by deeds, even though the words spoken be few. With children, things seen are mightier than things heard; and example is tenfold more powerful than precept.

The development of moral power is based upon exercise of the emotions. The emotions that we entertain return to us again and again, until they finally remain, permanently influencing our conduct. Every action that we perform, every thought that crosses the mind, every emotion that we feel, is the beginning of what may become a habit, and a part of our character. It has been truly said, "A thought is an embryo action: give it time, and it will mature itself; entertain it, and it will return again and again, until at last nothing but a determined effort of the *will* can prevent it from acting itself out." Herein lies the real source of much of the wrong-doing in the world. Wrong thoughts are first entertained until, unconsciously, they gain the power to escape in actions; and society is astounded by some great crime. The thoughts that prepared the way for the bad act had been entertained until their accumulated strength overcame the resistance of a weakened will. No person is competent to say he will do a wrong act only once, because the doing of that very act once deprives him of a portion of his power to resist the temptation to do it again. So, on the other hand, each single manly resistance of an inducement or inclination to do a wrong act increases the power of resistance, and weakens the temptation or desire to do it.

To impress those under our instruction with the importance of entertaining only *good* thoughts, and of acting from right motives, is our highest duty. Success in this is the greatest triumph that a teacher can attain. Training pupils in good habits of thinking and acting is of greater value to them than the learning of all that the best text-books contain concerning the whole circle of the sciences. The teacher's true work in the development of moral power is governed by the same laws as in the development of physical or mental power; and it consists in providing the means for such exercises as will increase the strength of this power, and in so guiding the pupil that the proper exercises shall be taken. Moral power must be acquired by "*the doing.*"

From what has already been said, it will be understood that my aim has been to show that true education is a development of power: of power to see distinctly, and to comprehend; of power to hear accurately, and to understand; of power to observe, to compare, to think, to judge, to reason, to remember, to will, and to act rightly: and that each variety of power can be developed only by and through the proper exercise of the appropriate organs. Seeing cannot be trained by hearing; the power to observe and compare cannot be developed by committing words to memory; the power to reason cannot be made strong by memory alone. The acquisition of knowledge and the development of power go forward hand in hand when properly conducted. When the mode of acquiring knowledge is such as to cause a proper exercise of the faculty which should be employed in the process of getting it, the desired power is certain to follow.

In an excellent paper on "Teaching Natural Science in Schools," Prof. Wilson, of Rugby, describes the kind of work in teaching that will produce development of mental power. He says: —

"Theory and experience alike convince me that the master who is teaching a class quite unfamiliar with scientific method ought to make his class teach themselves, by thinking out the subject of the lecture with them, taking up their suggestions and illustrations, criticising them, hunting them down, and proving a suggestion barren or an illustration inapt; starting them on a fresh track when they are at fault, reminding them of some familiar fact they had overlooked, and so eliciting out of the chaos of vague notions that are afloat on the matter in hand — be it the laws of motion, the evaporation of water, or the origin of sand drifts — something of order and concatenation and interest, before the key to the mystery is given, even if after all it has to be given. Training to think must be first and foremost as his object. So valuable are the subjects of natural science intrinsically, and such excellent models do they provide, that the most stupid didactic teaching will not be useless; but it will not be the same source of power that the 'methods of investigation' would be in the hands of a good teacher."

It is proper now to consider if the training for the development of power should be of the same kind, and intended to affect the same faculties, during all the stages of education. The answer to this important inquiry must come from the laws of development. By an examination of these laws we discover that there are periods of development for the mind, as well as for the animal and the plant; that during each of these periods the exercises should be adapted to those particular powers that come into activity then.

First Period. — The period of childhood up to *about ten years of age* is the one during which the senses are developing, and the perceptive powers are most busily occupied with surrounding objects in gathering facts and the elements of knowledge from the external world, and in learning to understand and use language. During this period the teacher's aim should be to train those powers that are employed in getting elementary knowledge, as a basis of future attainments in language, science, and art. Things — their properties, uses, and names — are among the materials that must occupy an important part of the time. This is the period for gathering facts relating to all surrounding objects; and the exercises for instruction should facilitate this end, and thus prepare for scientific investigations during later periods of development.

Second Period. — The period from the age of *ten to about fifteen* is the time specially appropriate for giving attention to language and to the cultivation of memory. While the accumulation of facts should still form an important part of the teacher's work, great efforts should now be made toward forming habits of ready and accurate recollection and the use of language. Special attention may be given to geography, history, biography, descriptions, compositions, and to committing to memory poetry and declamations, sentiments and quotations, as a means of storing the mind with gems of thought clothed in beautiful language, and of developing the powers of memory.

Third Period. — The period from *fifteen to twenty years* of age should be occupied with subjects that furnish exercise for the powers of reason and judgment, as mathematics, physical laws, logic, and the natural sciences.

In conclusion I will add, knowing the nature of the being to be taught is indispensable to certain success in the work of developing power. Power, in education, comes by and through well-formed habits of careful observation, of intelligent thinking, of accurate description, and of learning by doing.

Knowing *what* to teach, and knowing *how* to teach, are two very different things. Knowing *what to teach* is a great attainment of knowledge; knowing *how to teach* is the attainment of a great art. As a means, therefore, of securing the desired development of power, attend first to learning the nature of the being to be taught, then to what to teach and to the art of teaching; and with faithful labor and patient waiting, success will crown your work.

GERMAN UNIVERSITIES.

BY JAMES WASHINGTON BELL, LEIPZIG.

WHAT most strikes an American on visiting the German universities or colleges — for this English distinction is unknown here — is, in the first place, the unpretentious buildings that are made use of. Though Leipzig is not a large place, a stranger might walk through it from morning till night and pass and repass the university buildings without ever suspecting that inside, in dingy rooms filled with the commonest wooden benches, the foremost men in Europe, in their departments, were lecturing to young and even middle-aged men from every quarter of the globe. With us, a magnificent pile of buildings is usually the first step in founding a university; the library, apparatus, and general inner economy being too frequently matters of secondary importance. The Germans, on the contrary, rent or build a row of houses in a quiet part of the city, get together all the books and manuscripts they can afford to buy, erect as many museums and laboratories as possible, and offer perhaps modest incomes, but with a large liberty and many privileges, to talented and enthusiastic men, irrespective of creed or politics, to come and further the cause of science and learning. In short, here the instruction and intellectual advantages to be had make the university; there, in too many cases, the buildings and externals.

What the Germans themselves regard as the chief characteristics of their system may be summed up in freedom of teaching, freedom of learning, method, and organization. Those who teach can, with unimportant exceptions, teach as much or as little as they like, how they like, and what they like; and every graduate can, by passing an extra examination, claim the right to teach. "At this moment," says Prof. Helmholtz, of Berlin, "the extremest consequences of the materialistic metaphysic, the boldest speculations on Darwin's theory of evolution, can be taught in German universities just as freely as the most extreme deification of papal infallibility." * Those, on the other hand, who learn, learn what they like, in what order they like, and when they like. A famous professor says: "The German university desires no other diligence than that which springs from the personal resolve of the student himself." † With unimportant

* Die Akademische Freiheit der Deutschen Universitaeten, 1878.

† Die Deutschen Universitaeten, etc., von H. von Sybel, 1874.

exceptions for those who intend entering the service of the state,* the student may choose his own lectures, and even then attend them or not as he sees fit. "An opinion that does not rest on independent, personal conviction is at bottom worthless," says Helmholtz.† "No discipline is ever requisite to force attendance upon lectures which are really worth the attendance, as is well known wherever any such lectures are given"; this was Adam Smith's experience, and the German universities give practical proof of its truth.

Thus, freedom to almost any one who wishes to teach, to do so and take his chances; the utmost freedom in teaching to those who teach; and freedom for both teachers and taught to move unhindered to any of the score of German universities where they think they can do better, — form the *Magna Charta* of these universities. No attempt is made to draw students to, or retain them at, any university, beyond presenting the best opportunities possible for study and investigation. Here they may hear a man lecturing on a subject in which he is a recognized authority; there, facilities are offered for using a museum or rare collection, or visiting a famous hospital; nowhere are scholarships, bursaries, or fellowships, which "attach a certain number of students to certain colleges, independent altogether of the merit of those particular colleges," advertised as a reason for visiting or remaining at any college rather than another. "Were the students upon such charitable foundations," says Adam Smith, "left free to choose what college they liked best, such liberty might perhaps contribute to incite some emulation among different colleges." This shrewd Scottish professor has shown as clearly as any German the objections to such a system. "Whatever forces a certain number of students to any college or university, independent of the merit or reputation of the teachers, tends more or less to diminish the necessity of that merit or reputation," was penned over a century ago, and in England; though Germany has carried out the spirit of it more than any other nation, with what advantage may be seen.

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* And even here it is the state, and not the university, that prescribes certain lectures for its officials.

† The same author's opinions on this double-sided freedom may be gathered from the following sentences: "The student's full conviction is only to be obtained when the free expression of the teacher's conviction is guaranteed; in other words, with freedom of teaching. . . . There exists in Germany no hindrance to the discussion of any scientific controversy (wissenschaftliche Streitfrage). Of freedom of teaching in this sense, there can be no talk in French or English universities. . . . Thus there runs through the whole organization of our universities this reverence for free, independent conviction, which is more firmly implanted in the German races than in their Aryan relations of Roman and Celtic origin."

Prof. Mayerhoff wrote over forty years ago, "Teachers must have freedom to teach, and scholars to learn. These conditions are necessary, because in so far as they are circumscribed or restrained, so is culture; the prime purpose of a university is then given up."

Through this custom of moving about, a student can hear all the best men of Germany in his department, learn something of their methods and ways of teaching, get thoroughly drawn into the various scientific and literary currents of the day, and so be in a better position to value them at their worth and form his own opinions of them.

As to lectures, studies, and way of life, both professors and students are left as free and untrammelled as possible.* The former are there to further science and national culture, to teach and guide young men who come to study and think. The student who has hitherto been learning, acquiring facts and information on authority, is now expected to study, to examine, weigh, and judge for himself. He has brought with him to the university a certificate of ripeness (Maturitaets Zeugniss); he now enters man's estate, and must no longer rest his convictions on what society, his teacher, or his text-book says. So thoroughly, indeed, do German professors abhor anything like swearing *in verba magistri*, that they prescribe no text-books at all. In the opening lectures of a course, each teacher sketches the history of his science, gives the main views of the different schools as impartially as possible, points out the leading and recognized authorities in each department, and the student's duty is then to think his way through to independent ground. Each professor is expected, and indeed regards it as his most sacred function, to act, like Socrates of old, the part of the intellectual midwife.†

Next as to science or method. "Our task consists essentially," says Von Sybel, "in communicating to the student the *method* of his science, and thereby putting him in a position, not perhaps of becoming a *savant* himself, but at all events of prosecuting his future calling in a philosophic spirit and manner. He must learn, before all, what science is, how one goes about scientific work, and what scientific creation means; . . . he must be allowed to take part, as far as possible, in the creative development of thought." Whatever in later life his calling may be, he must, during his academic years, be a disciple of science and nothing else; because the best preparation for every calling is the attainment of scientific maturity, flexibility, and independence of mind. In 1865, Matthew Arnold was sent by the Schools Enquiry Commission of England to study the middle and higher education of the Continent. I can best say here what I wish, by quoting a few sentences from his report. I use the second edition of 1874: "The paramount university aim in Germany is to encourage a love of study and science for their own sakes; and the professors, very unlike our college tutors, are constantly warning their pupils against *Brodstudien*,—studies pursued with a view to examinations and posts." In all the universities, examinations are still used as a supplementary test of the candidate's fitness for a degree. In theology, medicine, and law, two are required; in philosophy, or as we should say arts, only one. "But in none is the degree examination in itself such as to make it what the degree examination is with us,—the grand final cause of the university life. 'Der Zweck des Lebens ist das Leben selbst,' says the German poet; and this is certainly true in Germany of the university life." The chapter ends thus: "Such . . . is the system of the German universities. *Lehrfreiheit* and *Lernfreiheit*, liberty for the teacher and liberty for the learner; and *Wissenschaft*, science, knowledge, systematically pursued and prized in and for itself,—are the fundamental ideas of that system. The French . . . are naturally most struck with the liberty of the German universities, and it is in liberty that they have most need to borrow from them. To us, ministerial programmes and ministerial authorizations are unknown. Our university system is a routine indeed; but it is our want of science, not our want of liberty, which makes it a routine. It is in science that we have most need to borrow from the German universities. The French university has no liberty, and the English universities have no science; the German universities have both." Whether the last sentence does not owe some of its easy swing to a pardonable exaggeration is perhaps questionable; but this much is beyond dispute, that the whole method and system of management of German universities allows more liberty to all concerned, is freer from all caprice and arbitrariness, is, strange to say, more democratic, and accomplishes more, and more cheaply, than the universities of either Britain or America.

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* Carlo Cantoni, an Italian writer, favorably known by his discussion of university questions, has contributed a series of articles on University Reform to late numbers of the *Nuova Antologia.* His attitude toward German universities may be gathered from the following: "Complete union of all the Faculties, liberty to the professors to teach what they believe (tutti quegli insegnamenti che credono), liberty to the students to attend the lectures that suit them best, lecture fees for the benefit of the professor, are in short the principal changes we propose."

† "The essence and excellence (das Wesen und der Vorzug) of our universities consist in making active (self-thinking) and not merely receptive scholars." — PROF. VON SYBEL.

"The alpha and omega of our method is the training up of youth to complete independence of thought." — *Id.*

The professor who by his own diligence and ability has fought his way up amid the freest and fullest competition, comes into no relation with his students but as a teacher and guide. If any student transgress the college statutes, the regular university court, over which a jurist presides, punishes him by depriving him temporarily of certain privileges; or in extreme cases, erases his name altogether from the roll. If he commit any crime, he has, like any other citizen, to reckon with the police.* The university is consecrated to learning and research: it is there to elevate and quicken the intellectual life of the nation, and for no other purpose; it keeps no boarding-house; it declines being turned into a reformatory; it undertakes to look after no wild boys, or see that they attend lectures and prayers; it gives no scholarships or prizes to encourage clever but lazy pupils. What it gives to poor students, it really does *give* and to *poor* students, and not under the form of a bribe, by remitting the lecture fees altogether, or allowing students to pay for them when they have finished their course and received appointments. If the German student learns at all, he must learn from a different and more permanent, not to say purer, motive; for scholarships and fellowships, in the English sense, are unknown. The money saved is spent on lectures, books, apparatus, or whatever tends to encourage original research and study for its own sake.

There is a considerable difference of opinion of late, even in England and America, on the system of competitive examinations. Rev. A. R. Grant, late inspector of schools in England, has a good deal to say against it in the "Nineteenth Century" for last November. Among other things, he blames the system for treating the mind improperly, which, instead of being trained by a course calculated to draw out and develop its powers, "is charged with instruction designed for an immediate purpose"; that it enlisted "ambition in the service of learning," and made students, not for the love of knowledge, but of distinction; that "the love of learning for its own sake was often overpowered in the few who had it, by the superior force of the secondary motive." Its baneful effects did not even stop with the students, who often, like Tennyson's "Princess,"

> "Sought far less for truth than power
> In knowledge,"

but extended to the teacher, who soon found that "knowledge need not be deep or even sound in order to be readily producible; nay, even that thorough teaching was often pains thrown away for examination purposes. Hence originated 'cram'; *i. e.*, teaching with a view to a specific examination alone of various degrees of literary dishonesty, but in all cases aiming at passing off a counterfeit instead of real knowledge." The same question is well discussed in the "Atlantic Monthly" for May, 1880, where the writer suggests three changes in American universities: first, fewer examinations and more leisure work; second, "greater freedom for students, both as regards their choice of study and attendance at recitations; and third, a different method of appointing college instructors." On the second point, we have seen above what German opinion is; of the third, presently. As to the first, it may be of interest to know that competitive examinations play a very subordinate part indeed in Germany. "So well do the Prussian authorities know how insufficient an instrument for this object—that of promoting the national culture and filling the professions with fit men—is the bare examination test; so clearly do they perceive that what forms a youth, and what he should in all ways be induced to acquire, is the orderly development of his faculties under good and trained teaching."* Hence in the instructions for the examinations, it is provided that the latter shall not be such as to tempt to any special preparation, but to be such as "a scholar of fair ability and proper diligence may at the end of his school course come to with a quiet mind, and without a painful preparatory effort tending to relaxation and torpor as soon as the effort is over." This refers to school; but Hart, in his valuable work on German universities, says: "The future scholar of Germany is a man of whom we in America have no conception. He is a man who could not exist under our system; he would be choked by recitations and grades. What he studies, he studies with the devotion of a poet and the trained skill of a scientist. The idea of competing, of putting forth all his energies in a trial of skill after the fashion of the English university examination, has never occurred to him. He studies to learn, to master what has been done before him, and to contribute if possible to the growth of knowledge; he reads with a view to paramount results, not to examinations." In the civil service, even this test takes a secondary place. "The German postal system," to take one example, "is the most democratic in the world, for this reason: that every youth in Germany, practically speaking, may become a postmaster by his own choice; that is to say, the service is open to all those to whom the certainty of permanent employment with promotion, and on retirement a pension, is sufficient reward for the preliminary course of study that must be pursued, and the few years during which only an extremely low rate of pay is enjoyed."[*] The above describes exactly the position of professors in the universities, as does also the following, from the same pen: "In short, the civil service is a profession which a man chooses for himself, as he chooses medicine or law or the ministry. Like these professions, it exacts from its members a previous course of special discipline; and when that has been completed, imposes no further tests except efficiency and good conduct." The student troubles himself very little about examinations; sound, honest work in any department on any subject is never lost or thrown away; "cram" would be promptly detected, so he governs himself accordingly. When he wishes to graduate,—that is, when he feels *ripe*,[†]—he hands in an original dissertation in some department he professes to have mastered. If this prove satisfactory, he is now examined; and if successful, his name appears by itself in one of three classes, according to the satisfactoriness of his examination. Nearer than this, which simply means very well, well, or passed, the German examiners do not pretend to classify his intellectual acquirements or abilities. They try to judge by an absolute standard, and not one changing every year; and no attempt is made to find out how he would stand if pitted against his contemporaries, or whether he could, in a given time, answer a given number of questions as smartly and appropriately as others whom fortune had given him as classmates.

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* *I. e.*, since the introduction of the new regulations in 1878. Before this, a regular university court attended to him.

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* Higher Schools and Universities in Germany, by M. Arnold, second edition page 58.

As these "artificial stimulations of vanity and emulation" are left out of the German programme, there is a corresponding absence among the students of all rivalry and work prompted by that motive, of all *tumultuarische Vorbereitung* or "cramming," of all training "in the art of producing a clever answer to a question on a subject of which you have no real knowledge," to use the words of Mr. Mark Pattison. Care is taken on the teacher's side that the "instruction may not degenerate into a preparation for the examination, that the pupil may have the time requisite to come steadily and without over-hurrying to the fulness of the measure of his power and character, that he may be securely and thoroughly formed, instead of being bewildered and oppressed by a mass of information hastily heaped together."[‡]

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[*] New York *Nation*, Feb. 26, 1880.

[†] Great latitude is allowed as regards the time a student may spend at a university before graduating. The minimum time varies at different universities and in different Faculties, and a maximum limit does not exist.

[‡] *Perverse studet qui examinibus studet*, was a favorite maxim of Wolfo, the philologist.

The Germans call the English universities seminaries; Signor Matteucci calls them *hauts lycées;* Mark Pattison complains that English education tends to raise a class of clever reviewers; Matthew Arnold says that, "with their college and tutor system, — nay, with their examination and degree system, —they are still, in fact, *schools*, and do not carry education beyond the stage of general and school education"; and Grant Duff, after a special study of the subject, points to the German universities as, in spite of their faults, far ahead of all similar institutions.* In America, Dr. G. M. Beard complains of the want of a sufficient body of trained men capable of forming an independent opinion on special scientific works. "Our ideas, like our silks, must have the stamp of Europe upon them even if manufactured here." "Philosophical works of an original character," he continues, "cannot obtain in this country any considerable amount of intelligent criticism, either favorable or the reverse"; and though matters are improving, "even now very few individuals and few journals are able to decide whether any new contribution to thought is a great truth or a great folly until England and Germany have been heard from."† Here the universities are censured indirectly or negatively; but Mr. Brown, in an article in the "Atlantic," cited above, brings home the charge thus: "As success in the majority of examinations does not require that the student should be an original or broad thinker, it is not surprising that the majority of recent graduates of Harvard lack, on graduation, that training in independent thought which is so necessary to true culture."

Perhaps more important still than this absence of petty rivalry between the students, is the thorough "equality and fraternity" existing among both students and professors of the different departments. The idea, so prevalent in England, that the abstract sciences are aristocratic in their relations to one another, that the specialist in classics or mathematics stands in some way above his brother who is making his mark in zoölogy, Coptic, or modern philology, is altogether foreign to the German mind. No professor of any department in the wide domain of knowledge acquires thereby a right or claim to any post of honor or emolument in or about the university. In almost everything connected with university matters the Germans — at heart more aristocratic than the English, and who have supplied half Europe with crowned heads — are the most democratic people in the world. Notwithstanding their proverbial fondness for titles and distinctions which penetrates even the study of the *savant*, in the realm of science, whether orthodox or the reverse, whether classically or scientifically inclined, all men are practically equal. The *rector magnificus*, the post of honor at the head of the university, and the deans of the separate Faculties, — delegates, as it were, appointed by the members of the Faculties to represent them, — are in this republic of letters annually elected by their fellows, and at the end of their term of office fall back to their old position.

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* "L'Education des universites Allemandes commence ou finit celle de plusieurs nations de l'Europe." Mme. de Staël, L'Allemagne, Chap. XVIII.

† *Nation*, March, 1880.

In the appointment and training of professors, the Germans differ from other nations perhaps more than in anything else, and this affects the very life of the universities as no other question does. There must be the utmost tact and delicacy on the part of the authorities making the appointment, with a "fair field and no favor" for all applicants. Even the suspicion of nepotism or "wire-pulling" must, as far as possible, be avoided. The appointment, when once made, should, on the one hand, be irrevocable, "for life or good conduct"; yet, on the other, leave no reasonable ground for the charge of monopoly sometimes brought against it.* This, then, is what the German system aims at, and what, with due allowance for human imperfections, it in the main accomplishes. We must here bear in mind the rivalry existing between the different universities, and the fact that they freely exchange not only students, but also tutors and professors. This and the system of *privat Docenten*, which has been called "a true lever of science" (ein wahrer Hebel der Wissenschaft), enable a young man to study pure science *professionally*, as law or medicine is studied with us. He lays his plans to become a professor in much the same way as his companions do to become doctors or clergymen. "By this arrangement," says Mayerhoff, "talent is afforded an opportunity for development." It is, perhaps, the most important one of the many causes that make Germany "the intellectual workshop of the world." That it should be so is not so strange, when we reflect that there are at this moment in Germany over 1,800 carefully trained men, whose professional duty it is to study science for its own sake, irrespective of its bearings on practical life, — men whose business is to philosophize, to think calmly, deeply, and systematically on all the problems of life; and who, to do this, enjoy the utmost freedom, barring practical political questions, where they are most restricted, — have liberty,

> "Withal, as large a charter as the wind,
> To blow on whom they please or what they please."

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* In the German university of Dorpat, in Russia, when a professor has lectured twenty-five years his chair then becomes *eo facto* vacant, he however being eligible for re-election.

A year or so after graduating, our young aspirant for professional honors receives permission to hold lectures in the university, with the title of *privat Docent.* He may now soon become discouraged, as many do, and give it up; or he may inspire enthusiasm, establish good classes, and succeed. If he is fortunate enough to make his subject interesting and popular, when it was previously taught in a slovenly and careless manner, it is so much to his account. His income and prospects of promotion increase with his popularity.* A book, a pamphlet, or some original contribution to science, in due time, points out the rising man. If his alma mater fail to acknowledge evident ability and merit, by promoting him to the rank of "extraordinary professor," there are twenty-one other colleges in Germany, not to mention those in Austria, Russia, Switzerland, and Scandinavia, that are ready and willing to do so; for it is the interest of every university that wishes to rise or keep its place to be ever on the watch to receive and welcome men of promise.† Thus, when any famous professor dies, his place may in some measure be filled: there are at hand plenty of men who have not only made a name in science, but have spent years in patient teaching. Both these qualities can be taken into account by those making the appointment. This is done as follows: The names of three "extraordinary professors," the foremost men of Germany in their department, in the estimation of the men perhaps best able to judge,—namely, the professors in full standing,—are submitted to the government. Of these three, any one of whom would as a rule do honor to the chair, one is chosen. It is, of course, the interest of all concerned that the best man, the man whom cultured opinion in Germany approves, should be selected; for here, as so frequently cause and effect go hand in hand, — numerous and renowned teachers drawing crowds of students to their college, and the best professors being desirous of going where there is most intellectual life and the largest number of students. This, it is said, leads to centralization, students and professors all tending to the large city universities. What the result of this may ultimately be is hard to say; but for some departments of study, and for the preparatory work of all, the provincial universities seem in the mean time quite capable of holding their own.*

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* It is interesting in this connection to read Adam Smith's views: "In every profession, the exertion of the greater part of those who exercise it is always in proportion to the necessity they are under of making that exertion. This necessity is greatest with those to whom the emoluments of their profession are the only source from which they expect their fortune, or even their ordinary revenue and subsistence. . . . Rivalship and emulation render excellency, even in mean professions, an object of ambition, and frequently occasion the very greatest exertions. Great objects, on the contrary, alone and unsupported by the necessity of application, have seldom been sufficient to occasion any considerable exertion. . . . In other universities, the teacher is prohibited from receiving any honorary or fee from his pupils, and his salary constitutes the whole of the revenue which he derives from his office. His interest is, in this case, set as directly in opposition to his duty as it is possible to set it" — Wealth of Nations, Book V., Chap. I., Part 3.

J. S. Mill repeats much the same thought, thus: "The ideally perfect constitution of a public office is that in which the interest of the functionary is entirely coincident with his duty." — Representative Government, Chap. II.

† Over forty years ago, Prof. Mayerhoff, in a work on the history of German universities, wrote: "Activity is kept alive by the *privat Docenten;* the professors dare not relax their efforts, because their influence would then pass over to their youthful competitors, who are steadily working their way up."

But suppose our "extraordinary professor" to have received this appointment. He thereby gets a higher title, *professor ordinarius*, a better salary, a much better chance of attracting students, and certain minor privileges. But even now he cannot afford to relax his efforts: what has been won by his own ability and diligence in the face of all opposition must be held under the same conditions. In spite of immense advantages, the moment he becomes careless and indifferent and fails to inspire enthusiasm, he finds his lecture-room deserted and his influence declining. He has every motive to continual exertion; *semper paratus* must always be his motto.† The temptation to rest on his laurels and resign himself to the social enjoyments and honors his position affords is much less than with us, and he is seldom or never taken from the pursuit of science to attend to the affairs of state, as in England and France. A political career is rarely open to him, even if he wished to follow it; statesmen are recruited from another school.‡ For better or for worse these callings are, with few exceptions, kept strictly apart. The professor has more to do with theory, unapplied science, or general principles, and is regarded as a servant of science fully as much as a teacher. He is expected to keep not merely abreast of the time but ahead of it; he occupies his position as an acknowledged leader of men in his line of thought. Here, as elsewhere, possession is nine points of the law; yet if he visibly lags behind, there are others at hand who, using the ground he has won as a basis of operations and pushing their investigations farther, leave him behind in the race, till at last he takes his place on the pension list, removed from the jostle of those who have outstripped him. Considering all this, we now comprehend the eagerness, the intense intellectual activity and generous rivalry, yet withal the calmness, regularity, and absence of all bustle and hurry, that are so characteristic of German university life.

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* See an interesting discussion of this in "Aspects of German Culture," by G. S. Hall, Ph. D. (Osgood & Co., Boston, 1881), page 114, *seq.*

† Mme. de Staël observes of German professors: "Non seulement les professeurs sont des hommes d'une instruction étonnante, mais ce qui les distingue surtout, c'est un enseignement très-scrupuleux."

‡ Thus following in the footsteps of the Great Frederick, who, unlike Plato, is reported to have said: "If I wanted to ruin one of my provinces, I would make over its government to the philosophers."

The choicest intellectual life of the country is collected round the seats of learning: indeed, one might count on one's fingers the distinguished men of letters in Germany who have not been intimately connected with the universities. And as if to avoid the possibility of any talent in this direction being lost or cramped by being obliged to turn aside to practical life, men who in later life or in other professions make some worthy contribution to the cause of knowledge are frequently appointed directly as "honorary professors," so enabling them, if they wish, to devote themselves entirely to this pursuit. And though meanness and petty jealousies, as in all human affairs, interfere with the complete realization of this ideal, yet the best opportunities are offered to all who have a taste and talent for abstract studies to make the pursuit of them their profession. The universities are made to serve as homes for those who wish to investigate and teach, as well as for those who wish to learn.* They are made to combine — and in this lies perhaps their special excellence — "the continual union of investigation and instruction" (die stete Verbindung und Verschmelzung von Forschung und Unterricht), to use Von Sybel's phrase. Thus do these nurseries of science form places of refuge where teachers and taught may meet; where those who, content with a modest income, wish to devote themselves wholly to the study of abstract science, can do so, indifferent to the hasty judgment of the many, accountable for their opinions to none, unconcerned about the immediate applications of theory to practice, and unbiassed by fears or hopes to the probable consequences of what they regard as scientific truth; and where those who wish to think out deeply, fearlessly, and freely, and study impartially "the ultimate questions of life and conduct," may hear both sides and all sides from the lips of the acknowledged leaders themselves.

How have matters stood in this respect in England, France, and America? Helmholtz expresses his surprise that men like Humphrey Davy, Faraday, Darwin, Grote, and others should have had to fight their way alone, or that the universities should have lost the benefit of their teaching, methods, and experience. "On the whole," says Von Sybel, "the development of the sciences in England is accomplished anywhere rather than in the universities"; and this taunt is acknowledged by Englishmen who have looked into the matter to be only too true. "Oxford," said Max Müller in a recent speech, "with its excellent material, the well-fed and well-bred youth of these islands; Oxford, with its many students that have not to work for their bread; Oxford, with its rich collections and libraries and fellowships, can do for the advancement of learning fifty times over what Giessen or even Leipzig can do." The question, Has it done so, and if not, why not? suggests matter for serious reflection. Prominent French and Italian *savants* speak in much the same way of their educational institutions as compared with German.* In America, it is true, learned men have occasionally obtained appointments allowing them a certain amount of leisure; but how far young men of ability and with a taste for abstract science can, without a large private income, make a life-study of a subject, irrespective of creed or party and unconcerned as to what, after candid and patient study, the conclusions they come to in that subject may be, every one knows.† Though theological seminaries may seem specially open to attack in this respect, they may, on the whole, be practically left out of account; for unless it is claimed that theology is being treated as a *science*, it is doubtless quite excusable to exercise the strictest supervision over the teachers of denominational colleges to see that nothing tending "to unsettle the minds of students" is taught. Here, however, what Helmholtz says in a wider connection holds true: "Do you wish to keep a branch of topics undiscussed, be it ever so remote, be it ever so small, be your object ever so well meant? In this case, your pupils must be kept closely on the prescribed path, and teachers must be obtained who will not kick against authority; but then you can scarcely talk of free conviction." But referring merely to the recognized sciences, if what Prof. Cliffe Leslie says in the "Fortnightly" for last October is at all true, there is much room for improvement yet. "No supporter of free trade, indeed," says he, in speaking of political economy in America, "could be appointed to a chair or get a class of students in Pennsylvania." Again: "At Yale College an attempt was made last year to stop the professor of social science, Mr. W. G. Sumner, whose name is honorably known in this country as well as in his own, from making use of Herbert Spencer's works, and the matter is not yet settled." Instances of this kind might be multiplied; indeed, it is even said that the representatives of collegiate freedom in America, Harvard and Cornell, have at times closed their doors upon men of sterling worth, and recognized authorities in this line of thought, simply on account of their theological opinions. To mention names here would be out of place, nor is it necessary. The facts remain that our best institutions, not to speak of the others, are far behind their German rivals in this respect; and that this is no question of secondary importance, but the one essential condition under which alone fresh, original, scientific work can be done. To see the place our universities take in the advancement of science, as compared with the German, one need only reflect how, in the philosophical and speculative sciences, — for these remarks naturally do not apply so much to the exact or practical branches of investigation, — the "epoch-making" discoveries of years ago are just now beginning to force their way into the universities; whereas in Germany, it is there they find their natural home.

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* "It is merely the exception when the capacity for investigating and the capacity for higher instruction (Forsch- und höhere Lehrtüchtigkeit) are not united in the same person." — Prof. Roscher, System der Volkswirthschaft, Bd. II, page 543.

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* Among recent articles, see one by Lachelier in the *Révue Philosophique* for February, on "L'Enseignment de la Philosophie dans les Universités Allémandes"; and by Cantoni, in *Nuova Antologia* for March and April, 1881.

† "At the present time, it would appear that in spite of all the popularization of German thought and modes of thinking among the English-speaking peoples, Germany is the only country where one can think without paying a tax so heavy as not to be almost prohibitory." —DR. GEO. M. BEARD.

That this state of affairs is eminently unsatisfactory, most thoughtful men will admit. If Bentham, Mill, Darwin, Spencer, and others had, while preserving their freedom, been brought into closer connection with the universities, one cannot help thinking that the advantages to both teachers and taught would have been incalculable. To some the pecuniary assistance would have been unnecessary, to others this early and honorable help would have been a godsend. Carlyle, to take one example, would, as we now know, have been freed from a gnawing care when penning the "Revolution," and trying to make ends meet by lecturing to private classes. In this way much of his future gloominess might have been avoided, while the accurate air of a university could not fail to exercise a beneficial effect on his weakness for generalizations. But all along wealthy colleges were spending the money that might have done this on scholarships, bursaries, fellowships, and what not, often for those who did not need them, while the practical experience and personal influence and power of scores of illustrious Englishmen was being irrevocably lost. As it is, hundreds of English students from all quarters of the globe, who would gladly have sat at the feet of Mill, Darwin, Spencer, Freeman, Froude, etc., have turned their footsteps in another direction, and are now listening to Helmholtz, Haeckel, Ranke, Mommsen, Roscher, etc.; for students are not blind to the advantages of a personal contact with such men, and this the printing-press can never supply.

The complaint of Thorold Rogers has surely some slight foundation: "The funds of our universities are so nearly exclusively employed in providing sinecures for the clergy, and in cheapening the highly refining process called 'gerund grinding,' that all students of science, whether it be psychological, physiological, molecular, or mathematical, turn to Germany chiefly for guidance in their investigations."

Defects in the university system of Germany have often been pointed out, but they are mostly on points of minor importance, the mere statement of which would unduly prolong this article; besides, as matters now stand, there is far more for us to learn than there is to find fault with.

It is impossible to close better than by borrowing the words of a writer who has spent over four years at four of the chief German universities, and who has made good use of his special opportunities for observation: "One of the grandest things about the German universities is that they are devised, unlike ours, as much for the education of the professor as for that of the student. Another is that unlike ours they are pure republics, with perfect academic freedom for all who can pass the required examinations to lecture upon any subject, and, with the slight political qualification mentioned above, from any standpoint. The result is that the student is brought into the close contact of the laboratory with the best professors, learns to feel through them the genial warmth with which new creations or discoveries arise in the intellectual world, and thus is saved from the danger of losing enthusiasm without gaining insight, — a danger to which all young men are liable, particularly if their teachers are drill-masters instead of being educators in the broadest sense." *

NOTE. — The academic year in Germany is divided into two sessions, the winter one lasting from the middle of October till the beginning of March, and the summer one from the middle of April to the beginning of August. Some weeks before the end of each *semester*, as it is called, the authorities issue the calendar in which the names of the lecturers, the hours and subjects of the lectures, and other details for the coming semester, are given. The one before me for the "Winterhalbjahr 1880–81, auf der Universitaet Leipzig," consists of eightly closely printed pages 8vo, the first thirty containing a plan of the lectures according to the faculties.

As Leipzig may be fairly taken as a representative university, some statistics concerning it may be of interest. The Theological Faculty begins the catalogue with 9 full professors, and 4 who hope to become so, but are yet in the transition stage of *privat Docenten*. The number of lectures in this Faculty is 24, besides 18 classes or societies conducted by professors, for debates, essays, and the like, on subjects within the department. Next comes the Faculty of Law, in which 10 full professors and 4 *privat Docenten* or tutors give 30 courses of lectures and conduct 7 societies, — one, for example, for drill in the Pandects, another on "Jurisprudentia Anteinstiniana," and so on. Medicine, next, has 98 courses of lectures, counting lectures proper and societies for drill together, with 11 *ordinary* and 15 *extraordinary* professors and 18 *privat Docenten*. The last Faculty, Philosophy, — by which the Germans generally understand more than we do, — is divided into several branches: A. Philosophy proper, with 17 courses of lectures and 7 societies. B. Philology, with 2 courses of lectures introductory to the study in general, which is subdivided into: (*a*) Latin and Greek Philosophy, with 13 courses of lectures and 11 societies for discussion; (*b*) Oriental Philology, with 21 courses of lectures and 4 societies; and (*c*) Modern Philology, with 17 courses of lectures and 10 societies for practice. C. History and Geography, with 15 courses of lectures and 8 societies. D. Art Sciences, with 6 courses of lectures and 4 societies. E. Economical and Political Sciences, with 22 courses of lectures and 4 societies for discussion and practice. F. Mathematics and Astronomy, with 14 and 3 as above. G. Natural Sciences, with 22 and 12. The whole Faculty has 43 full professors, 25 professors extraordinary, and 25 *privat Docenten*.

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* Dr. G. Stanley Hall, Aspects of German Culture, Boston, 1881, p. 120.

Thus there are 167 men of letters and of science, whose whole lives have been devoted to their own favorite subjects, engaged in giving over 300 courses of lectures and conducting 88 societies or clubs for mutual assistance and practice in the prosecution of certain branches. The number of students on the roll amounts to 3,326; the "hearers," with permission to attend certain lectures, 118. Of these, 474 are studying theology, 1,022 law, 465 medicine, and 1,365 philosophy. Distributed according to nationalities, 3,053 are German subjects, 223 belong to European countries outside of Germany, 48 come from America, and 2 from Africa. The previous semester there were 61 from America and 1 from Asia.

REAL EDUCATION: ITS PRINCIPLES AND A LITTLE-KNOWN CHAPTER IN ITS HISTORY.

BY WILLIAM JOLLY, H. M. INSPECTOR OF SCHOOLS.

III. SCHOOLS AIMING AT REAL EDUCATION AND PREPARATION FOR LIFE.

THE scheme of education described in these papers was carried out in other schools besides the Edinburgh secular, whose working we have already seen; and the story of these attempts at providing a truer and more direct preparation of children for the efficient and happy conduct of life is both interesting and instructive.

Glasgow was specially active in promoting these broader views of the function of the school, and also in endeavoring to secure an efficient system of national education. In 1850, several friends of George Combe, who had been variously engaged in efforts at extending and improving education, founded the Glasgow Secular School Society, the most prominent members being Mr. James McClelland, well known in the Social Science Association; Prof. Nichol, the eminent writer on astronomy; and Mr. Richard S. Cunliffe, long honorably connected with Anderson's College of that city, — all now gone over to the majority. This society established three schools on the model of the Edinburgh school, two of which were very successful.

The first was opened in St. Andrew Square, and was carried on for six years, chiefly by two brothers Bennett, one of them now a clergyman in Paisley, the other editor of the "Dunbarton Herald" till his recent and lamented death. The subjects taught included the usual branches, along with object lessons in the infant department as "an introduction to the sciences," physiology, social economy, phrenology, "the natural laws" in their relation to man's nature, as developed in George Combe's "Constitution of Man," and systematic instruction and training in the principles of morals. It was attended by an average of one hundred and fifty scholars of all sects, and was very successful.

Their second school was carried on in Carlton Place, chiefly by Mr. John Mayer, who gave an interesting account of it in 1866, before the Manchester meeting of the Social Science Association. The average attendance was from one to two hundred boys and girls, and the school was supported by fees and the contributions of its friends. It was carried on with great success for nearly twenty years, till 1872, when the passing of the Scotch Education Act secured many of the aims of its promoters, though certainly not the curriculum. This curriculum was similar to that of the Edinburgh school, and like it, excluded all theological instruction, while bestowing the most careful attention on religious training, as already explained, which was one of its prominent objects. It included physiology and social science from the first, and ultimately a wide range of scientific subjects, chemistry being a favorite study. Yearly reports were issued, containing interesting and valuable matter. The success of the special features of the school is testified to, amongst others, in an able series of papers in the "North British Daily Mail," by Mr. Robert Somers, afterwards issued as a pamphlet in 1857, in which the school receives the highest praise for both matter and method of teaching, saying that "such completeness of arrangement and such extension and breadth of study are rather an exception, of course, than the rule in the common schools of Glasgow."

In Leith a similar school was opened in 1853, expressly founded on the plan of the Edinburgh school; care being taken, according to the prospectus, to "give the education a practical tendency, which must prove highly useful to the pupils in after life." It was for five years known as the "Leith Secular School," but after 1858 as "Hay's Mechanics' School," from its chief promoter, Mr. James Hay, a well-known liberal citizen of Leith. It was taught by Mr. William Ellis, who had been trained in the Edinburgh school, and was carried on like the Glasgow school till 1872, the year of the Scotch Education Act. In spite of misrepresentation and opposition, the school did great good to large numbers, and received favorable yearly reports. Since 1872 the school-room has been used as a reading-room for the workers in the Leith Roperie, in whose premises the school had been carried on from the first.

Honorably vying with Edinburgh and Glasgow in this good work, a third centre of enlightened educational activity was the great cotton capital of England. In 1846, when the celebrated original Minutes of the Committee of Council on Education were issued, a number of earnest-minded, public-spirited men united together to demonstrate by local effort what a truly national system of education ought to be: unsectarian, free, "secular," and Real, under governmental and local managements. In 1847 they issued a "Plan for the Establishment of a General System of Secular Education in the County of Lancaster"; a remarkable document, broad and advanced, which will always be a monument of the enlightened public spirit of Manchester. They soon after founded the Lancashire Public School Association, to carry out these objects, broadening their basis in 1850 so as to apply to the whole country, under the name of the National Public School Association. This organization comprised an honorable list of eminent men, since better known in the educational and social world, whose names are too numerous to mention, — Dr. John Watts, who still survives in Manchester, deserving special praise; Cobden, also, being most active, and W. E. Forster, then commencing his great educational career. They began a long series of efforts in favor of their ideas, in public meetings throughout the country, publications on the many points at issue, educational committees and parliamentary bills, all carried out with indefatigable energy till the passing of the English Education Act of 1870, which was based on their own bills and embodied many of their ideas. One of the best results of this agitation was the foundation of certain schools in and around Manchester, exemplifying the education they recommended.

One of the most energetic workers on George Combe's educational lines was Mr. John Angell, now senior Science Master in the Manchester Grammar School, who had received his first inspiration in the first Birkbeck school in London, and had gone to Edinburgh to study the system carried out by Mr. Williams there. He successively conducted several schools in Manchester and neighborhood, expressly based on the Edinburgh model: the National Independent Odd Fellows' Secular School, opened in 1851, the Salford Mechanics' Institution School in 1853, and the Manchester Mechanics' Institution School in 1857. All these seminaries carried out the Realistic course of training and instruction identified with the secular schools; their aim being, as put by Mr. Angell in his early prospectuses, "to afford a sound practical English education of a higher character, more thoroughly useful and practical than common." The subjects included, besides the usual branches, lessons on objects, chemistry and other sciences, physiology and the laws of health, and social science, "because of their immediate bearing upon the happiness and well-being of society, . . . in order that the children might understand how much their health, longevity, and general happiness are dependent upon themselves, and that they might also the more fully comprehend their position in society and their duties towards it." Mr. Angell is a man of unusual ability, and sound, enlightened views on education, as shown by his labors and publications. He early became imbued with George Combe's principles, to whose memory he continues to cherish the most loyal attachment. He was one of the earlier introducers of science into schools, and has long advocated its more systematic and extended teaching there; its true method being very well put in a paper on "Science Teaching," read before the College of Preceptors in 1873. His conduct of the above schools was very efficient, the French Education Commissioners of 1851 reporting on it, amongst others, in the highest terms. The Salford and Manchester Mechanics' Schools are still successfully conducted, but have largely ceased to carry out their original features when under Mr. Angell, who entered the Manchester Grammar School in 1869.

The more energetic of the members of the National Association of Manchester, wisely determining to exemplify the principles they advocated, established a school in 1854 called the Manchester Model Secular School, known after 1861 as the Manchester Free School. The school was organized and conducted for ten years by an uncommon type of man, Mr. Benjamin Templar, who did so much by pen and work to spread the principles of Real education, and whose recent sudden and unexpected death at Southport is a great loss to education. The school was intended, as its name indicates, to be a model of what a national public school ought to be: free, "because supported by local rates, instead of by voluntary contributions and school pence"; secular, as excluding theology, though training the religious and moral faculties; unsectarian, as unconnected with any church; and Real, as preparing for life. The subjects were of the same practical character as in the rest of these schools, embracing a broad range of natural science, especially physiology and social economy, which were systematically taught to all the children from the first. Moral and religious training was a special feature, striking and instructive examples being given in Mr. Templar's works, especially in his "Ten Years' Experience of the Manchester Free School" and "The Religious Difficulty." The school was eminently successful. The excellence and attractiveness of the Realistic instruction and training given is shown by the fact that the percentage of attendance was unusually high, ninety-three per cent, though the pupils came from the lowest parts of the city and were taught free. Mr. Templar ceased connection with it in 1864. It is still successfully taught, receiving high reports and corresponding grants from government; but many of its special earlier features now no longer characterize it, — a matter of great regret.

George Combe had a very intimate friend in Dorset, with kindred tastes and humanitarian aims, whom he used frequently to visit,—

Mr. Thomas Horlock Bastard, of Charlton Marshall, near Blandford. Mr. Bastard held similar strong ideas of the potency of Real education in the improvement of mankind, and of its existing imperfections as a means for that end and as preparing for the business of life. He therefore determined, like others of the same enlightened circle, to illustrate practically, as far as he could, the kind of instruction he wished to be universal. In 1861 he issued a prospectus of a new school for both sexes, — an alarming innovation in that part of the country! — to be erected by him in Blandford, in his neighborhood; in 1862 executed a deed for its permanent endowment; and opened it in 1864, under the auspices of Sir James Clark and like-minded friends. It was made a "special condition that whatever subjects are taught, physiology, in connection with the laws of health, shall be a prominent branch of education in the school." It was also "recommended — without its being made an absolute condition — that economic science, in illustration of the laws of industry and wealth, shall be another branch of education; and that the practice of needlework, housework, and gardening shall be systematically pursued, with the declared design of teaching the *dignity* of labor, encouraging healthful exercise, imparting general skill and handiness in the every-day needs of life, and practically training to *self-help*," — it being also wisely provided that the instruction shall be subject to revision every ten years, so as "to keep the school and its teaching in accordance with the progress of the age." Mr. Bastard freely and generously attributes all he has done in education to George and Andrew Combe, and to his friend William Ellis, of London. As still further testifying his gratitude to the brothers, he erected a public pump, a boon in these chalk regions (opened the same day as the school), on which a tablet states that it is dedicated to the memory of his "esteemed friends" and "of their zealous efforts to diffuse knowledge of the human constitution and of the laws of nature, as conducive to the preservation of health and the advancement of morality": the only public monument yet erected to the memory of these good men and lovers of their kind, away down in distant Dorset, not one existing in their native country! Mr. Bastard has also decided views on the important mutual influence of the sexes in education and life, holding that they should be much more associated than they are throughout their whole education, from the infant school to the university, and in after social relations, in which the mistaken prudery and unconscious injustice of the British mind on the question keep them unnaturally apart, to great individual and social detriment. In order to carry out these views, he erected in 1855 a laborers' club, one of the first in the country, in which one third of the members are females. Mr. Bastard still lives, ripe in years and wisdom, superintending his various educational and social agencies; one of the last of the band of philosophical educationists who, amidst misrepresentation and social persecution, set themselves to work out the most practical solution of certain educational problems yet exhibited in the world.

One of the most remarkable and enlightened educational efforts ever made was carried on by that singular, ill-understood, misrepresented, but noble man, William Lovett, the Chartist, whose story, as plainly but powerfully told by himself in his autobiography, called his "Life and Struggles in Pursuit of Bread, Knowledge, and Freedom," is one of the most inspiring kind of books, full of noble thought and nobler action. Lovett was the best and most prominent representative of the higher form of Chartism, that of the moral-force Chartists, who have led the way in many paths of social and political progress, and were strenuously opposed to the low physical-force Chartism of Fergus O'Connor and his associates. With rare and early insight into the true state of the problem of raising the laboring classes, and of preparing them for political functions by making them worthy of them, physically, morally, and intellectually, they advocated a thorough Real education of the people. Lovett's appeals and labors alone, in this one of his many fields of action for the good of his fellow-men, should form an important chapter in the history of the people, which I can only briefly indicate here.

In 1837, with clear-sighted prescience, he issued an eloquent and powerful address to his fellows of the working classes, advocating a better and broader education as one of the strongest levers to raise their condition, and recommending the appointment by Parliament of a committee of public instruction, and the establishment, throughout the country, of normal, infant, preparatory, high, and finishing schools and colleges, with evening schools for after-education; a scheme foreshadowing subsequent legislation on education, and one which yet waits for completion. After his release in 1840 from Warwick Jail, where he was most unjustly thrown and most cruelly treated for his part in the agitation for the Charter, he published a similar address, in which he also described the machinery for carrying out the scheme by the formation of public halls or schools for the people, in all parts of the country, for carrying on schools, lectures, discussions, and entertainments, as well as agricultural and industrial classes; with play and pleasure grounds, baths, museums, laboratories, and workshops, and the offering of prizes for essays on education. This proposal, like all good things too advanced for their time, met with opposition from many and neglect from most. But Lovett, never daunted by failure or silenced by abuse, took personal action. Assisted by some liberal friends in the higher ranks, — of whom he had not a few, charmed by his moral wisdom and earnestness, — he fitted up a large chapel in Holborn, London, which was opened in 1842, under the name he had proposed, The National Hall, in which a great part of his programme was carried out. Here he soon opened a Sunday school, in which, as he tells us, "free admission was given to all who came cleanly in clothing and person, the subjects being reading, writing, arithmetic, grammar, and geography, with such other kinds of information as were in his power to bestow." This strange Sunday school lasted for four years, taught by himself and some of his friends. Though prevented for a time, from the want of funds, he at length succeeded in establishing, in 1848, the highest agency in connection with this attempt at elevating the people, — a day public school for both sexes, which opened with a hundred scholars, and soon increased to double that number. Its aim, according to the prospectus, was "to provide for the children of the middle and working classes a sound, secular, useful, and moral education, — such as is best calculated to prepare them for the practical business of life, to cause them to understand and perform their duties as members of society, and to enable them to diffuse the greatest amount of happiness among their fellow-men." The subjects taught were similar to those already described, including physiology and social science, the facts of trades and manufactures, natural history and other sciences, drawing, and vocal music. Social science was taught by William Ellis, who had the highest respect for this despised Chartist, and did not disdain to unite his own efforts with his in improving education, assisting also the indigent philanthropist with his ever-ready purse. Here also Lovett had the distinguished honor, in 1848, of being the first to teach physiology in a common school, and of publishing, in 1851, the first text-book for schools on the subject, "Elementary Anatomy and Physiology for Schools and Private Instruction," which received high praise from various journals, including the "Lancet." He also taught the subject in the Birkbeck schools, then recently opened, not only to the scholars but to the teachers there. In 1849, the school was visited by George Combe, who had previously been in correspondence with him in regard to it, and who then described it in the "Scotsman," and continued to watch Lovett's labors with interest and encouragement. At first it was taught by a male and female teacher, under his own superintendence; but in 1851, after his second teacher left, being unable to find a suitable successor, the pure-minded enthusiast, then above fifty and in feeble health, — which had been impaired by his jail experiences and abundant labors for his fellows, — became the teacher himself, and conducted it successfully for six years, until compelled to abandon the work by the hall being unjustly wrested out of his hands to become a public-house of a very different kind. He, however, continued his efforts for the public good on till his obscure death, so recently as 1877, teaching physiology in the Birkbeck and other schools, carrying on various literary labors, issuing fresh, noble appeals to his regardless countrymen, and framing text-books on astronomy, zoölogy, and geology, which never found a publisher. William Lovett was beyond question one of the most enlightened of British educationists, perceiving long before most, its existing defects, possessing a rare insight into the true nature and aim of the process, and pointing out the true means for its regeneration and improvement. His views are so admirable in themselves, and so clearly expressive of the purpose of all Real education, that we shall do well to ponder them, as expressed in his last address to his fellow-workingmen at the conclusion of his autobiography, which is pregnant with high practical wisdom and enlightened advice on most social problems: —

"Aim, I would beseech you, to secure a proper education for your children. The education you should aim at is not merely the old routine of reading, writing, and arithmetic, or such mere technical knowledge as shall enable your children to become more efficient tools of production; but such as shall serve to prepare them to stand on a footing of equality with others, and possessed of such knowledge and such moral training as shall fit them for a life of industry and usefulness, so as to be a blessing to themselves and their country. To this end, they must not only be able to read and write and cipher, but to acquire some knowledge of their own nature, of the world they inhabit, of the existences they are surrounded by; a knowledge of the conditions of social and political life, and rules of conduct on which their well-being chiefly depends; together with the outlines and rudiments of science, which form the foundation of those arts and manufactures that contribute to the prosperity and happiness of our country. In the pursuit of those attainments, there should be little difference made between boys and girls, seeing that women are destined to have the first and chief hand in moulding the minds and characters of our people; excepting that girls should be taught at school to make and mend their own clothing and to cook their own food, — qualifications of the first importance to promote the well-being of a family."

But the greatest achievement in Real education still remains to be described, — one happily which, unlike most of the excellent efforts already spoken of, has not passed away, but will be permanent, being endowed for all time, — the Birkbeck schools in London. Their founder, who still survives at the ripe age of eighty, is a most remarkable man, whose name has already been frequently mentioned, — William Ellis, one of the earliest, most enlightened, indefatigable, philanthropic, and generous of our educational pioneers. Early devoted to the amelioration of the condition of the people, he perceived, like all earnest men who have looked into the problem, that the strongest lever to elevate them is an efficient Real education; and that of the things requiring to be taught to them, nothing is more necessary than instruction in the "conditions of human well-being," the principles at the basis of all moral, commercial, social, and economical phenomena, as systematized in moral, social, and political economy, now better known as social science. He therefore set himself to its thorough study, with the special aim of rendering these so-thought abstruse subjects simple and practical, in view of their universal teaching in school to even young children. This he has admirably achieved in a series of works, representative specimens of which are "Progressive Lessons in Social Science" and "Religion in Common Life." Social science, as treated by Mr. Ellis, differs from what it is in most text-books on social and political economy, and has become under his hands, as already said, what is practically a new science, which brings to bear on itself the whole of the mental faculties, the sympathetic as well as the self-regarding: "a correlation," as Dr. Leverson, the American author on the subject, says, "first illustrated by the teachings of William Ellis, which has been more or less successfully followed up by his disciples; so that to-day, when properly taught, instead of warping the minds of its students into a one-sided egoism, it develops a largeness of views, a generosity of sentiment, and a soundness of judgment, perhaps unattainable through any other study." *

Mr. Ellis early began its teaching in schools, his first attempts being made in 1846, in a British school in Camberwell, and in 1848 in Lovett's school, as just told. He was agreeably surprised at the ease with which it could be taught, and the interest and pleasure it excited in even young children, and he has ever since devoted himself to expounding and teaching it for educational and popular study. His pleas and pleadings for it as a subject of national importance,

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* See Kiddle and Schem's excellent "Cyclopædia of Education" (*s. v.* Social Science). E. Steiger & Co., New York.

that should be peremptory in every school, are earnest, eloquent, practical, and powerful.

Like his friends, the educational reformers of this narrative, he was a practical man, and anything but a dreamy enthusiast. Knowing that talking, however wisely, is powerless without doing, he determined to put his scheme of school instruction into practice by founding schools for carrying it out. He therefore entered heartily into a scheme for founding a school for Real education in connection with the London Mechanics' Institution; Mr. Williams, afterwards of the Edinburgh school, being secretary of the school committee. Chiefly through Mr. Ellis's liberality and assistance, the school was opened in 1848, — the first of the Birkbeck schools, so named, after the great Dr. Birkbeck, the founder of mechanics' institutes, and one of the earliest of popular science lecturers. The course of study was similar to that of the schools already described, but in addition to mathematics, mechanics, and the physical sciences, special stress was placed on physiology, so as to make the children "acquainted with the laws of their own organization, in order that they might understand how much their health, general energy, physical happiness, and length of life are dependent on their own conduct"; and most on social science, in order that, as the prospectus of one of the schools puts it, "the children may not go forth to take their part in the work of the world utterly ignorant of any safe guides of conduct: this teaching including, among other things, the knowledge of the laws relating to the production and distribution of wealth, the means by which wealth is made to accumulate, the advantage of division of labor and interchange, the laws which regulate wages and profits, the causes of variations in values and prices, the nature of the means adopted to facilitate interchange, but above all the courses of conduct which ought to and must be followed, in order to secure future happiness and well-being."

Mr. Ellis has, in succession, founded and endowed other schools on the same principles, naming them all Birkbeck schools, except the last, the Gospel Oak schools; thus magnanimously and characteristically subordinating his own name and work in connection with them. In this way, at an immense outlay, he has established seven schools in all, of which four still exist and flourish, permanently and handsomely endowed, — the Cambridge Road, the Peckham, and the Kingsland, Birkbeck schools, and the Gospel Oak schools in Kentish Town. In these, the subjects still taught and secured by their constitution are much the same as in the first Birkbeck school; including, besides the usual subjects in the infant and higher schools, physiology and social science (which are the staple subjects of the school, taught from the first), the elements of the physical sciences, vocal music, drawing, Latin to those wishing it (the classics being put aside), as well as French, German, piano, and dancing to those that want them, industrial work and domestic economy to the girls, and physical training in well-equipped gymnasia to all. Each school possesses a full staff of teachers, male and female, numbering in some cases above a dozen, and includes an efficient infant department, in which also the social and physical subjects of the school are simply but systematically begun, as in the Edinburgh school.

The school-rooms are spacious, well lighted, well ventilated, and amply supplied with all the modern improvements in educational furnishings existing when they were founded, though wanting in the more recent. They are also characterized by special admirable features in their work and discipline, similar to those already explained in connection with the Edinburgh Secular school; such as the discouragement of rote lessons, the training of the faculties by objects and by their exercise on the subjects taught, the banishment of prizes, the discouragement of a spirit of rivalry, the fostering of a love of knowledge and progress for their own sakes, the careful training of the moral and religious powers by means of all the subjects studied, and the minimum use, or, as desired by their founder, the total abolition of corporal punishment. The methods of teaching embody several peculiarities worthy of general application, — notably that known as "Socratic questioning," established by Mr. Ellis, and already alluded to as practised by Mr. Williams. The schools continue to be most successful, and the attendance is very large, though it somewhat decreased after the erection of the excellent Board schools, with their much lower fees.

George Combe and William Ellis were long intimate and dear friends, cherishing similar views on philosophy, education, and social advancement, encouraging and assisting each other in their abundant philanthropic, but little known and less appreciated labors for human well-being; and George Combe frequently visited, described, and recommended the Birkbeck schools at a time when they were new and misrepresented.

Other schools have existed in this country carrying out a course of education similar to the foregoing, and teaching the same subjects in whole or in part, of which those founded by the Dean of Hereford at King's Somborne deserve honorable mention, Dean Dawes himself being an advanced and enlightened advocate of social science, for universal teaching in school and for the training of teachers.

As will have been seen from even this necessarily meagre sketch of the foregoing interesting educational institutions, their chief aim and peculiar merit were their endeavor to work out practically the central conception of Realistic education advocated in these papers: that of imparting a knowledge of man and his environment, and preparing for life, while exercising as broad a range as possible of the faculties, physical and mental. This was the chief end of the education imparted, and to this all else was subordinated. The subjects which related to this aim were therefore made the staple work of the school, and the scientific subjects, especially physiology and social science, were not regarded as supplementary or higher subjects, but were systematically taught from the first. These schools may thus be truly characterized as preparatory schools in the best sense,—that of preparing, fitting, and equipping for after life; and may be shortly designated life-preparing, life-fitting, or life-equipping schools.

In none of them, however, was the mental constitution of man studied with equal care and systematic instruction as in the Edinburgh school, in which it formed a marked feature of the teaching, as was to be expected from its connection with the great phrenologist. In most of the others it was, from various causes more or less obvious, attended to less than its importance educationally and practically entitles it to. It is a subject which, for every reason, will some day become universal, along with physiology, hygiene, and social science, when our school curriculum is based on sound philosophy and practical wisdom in truly educating our children and preparing them for life.

Of course, in all of them, the common subjects — reading, writing, arithmetic, mathematics, and English in meaning, grammar, and composition — were carefully taught; but chiefly as instruments for the acquisition and investigation of Real knowledge. Their training power in exercising the mental faculties was of course fully recognized and acted on; but less time was bestowed on them than in schools in general, even for this higher end, because the promoters of the schools held that a much better mental training and gymnastic could be obtained through scientific subjects, especially the humanitarian sciences,—a position which is now held by some of the most eminent authorities, and which begins increasingly to be perceived,—while their utilitarian value in a Realistic course of study is superadded to their training power. Geography and history were taught as part of the general scheme, contributing to the knowledge of man and his surroundings. The exclusive or overstrained attention to foreign languages, classical and modern, they strenuously discouraged, and their promoters were amongst the most vigorous and effective opponents of the domination of linguistic studies in school, and were amongst the earlier champions of emancipation from their sway. So decided were their views on this point that classics were not taught by them at all, except Latin to some in the Birkbeck schools, these subjects being viewed as not required for general use and only for certain professional men, and the training afforded by them being better obtained through other subjects. Modern languages were more encouraged, for the sake of intercourse and business, as well as for their literature and science, and their training in linguistic and philological studies. Of course, in the secular schools, even these modern languages were not taught, from their being attended chiefly by the children of the lower and lowest classes, the Birkbeck schools being the chief exception.

The fact of this new attempt at a higher and truer education being begun and so successfully carried out amongst the children in the lower strata of society is an important consideration. It proves the natural interest of the course of study pursued, involving though it did so much of so-called abstruse science, and is an evidence of its excellent training effects, and the educative and instructive character of the teaching. It affords a practical proof of the success of the scheme of instruction, and of its adaptation for universal practice in our schools. Its moral and intellectual effects, also, on the subsequent conduct of the children who had passed through it, have been carefully inquired into, and found to be superior and most encouraging; of which details have been published from time to time in reports and papers* on the schools, — facts that form a striking and valuable practical testimony to the nature and tendency of the training and instruction given.

The year when these schools were first founded, the memorable 1848, is both interesting and important in relation to their aim as educational institutions. As already noted in these papers, their main purpose was to provide an education which should directly tend to raise the mass of the people in morals and intelligence; should impart true knowledge on the many problems of practical life which the French Revolution had rendered prominent in relation to the body of the people and their increasing influence and power of social and political agitation; and should prepare them for the exercise of social, civic, and political functions, by rendering them worthy of them through a more generous, useful education and practical training in school. It is there that chiefly or exclusively the masses can ever have an opportunity of gaining this, and there alone their minds can be awakened and strengthened to profit by other public means of instruction in regard to them, through lectures, books, and other agencies. The date of the establishment of these schools is thus an additional proof of their earnest, practical, public-spirited aims for general enlightenment and progress; while the utterances of their chief promoters, Combe, Ellis, and Lovett, have dwelt prominently on this aspect of their joint labors, and are valuable and eloquent contributions to this most practical and important aspect of the education question. These schools were opened in the Revolution year, in the following order: Lovett's National Hall School on the 28th of February, the first Birkbeck school on the 17th of July, and Combe's Edinburgh school on the 4th of December; Lovett thus having the priority in time, if not in intention.

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* See specially Mr. Templar's "Ten Years' Experience of the Manchester Free School" (Manchester, J. Heywood), and Bennett's "Plea for Secular Education" (Trübner).

The other chief characteristics of the schools may, in conclusion, be briefly enumerated. On the intellectual side there are, their making scientific teaching an integral part of the instruction from the first; the prominence given to the humanitarian sciences as an essential part of youthful education; their fostering Real instruction and subordinating linguistic studies; their improved methods of teaching, based on the science of education; their aiming at a full development of all the faculties by instruction and training, chiefly through *things*, the *real* objects on which the faculties act; their discouragement of appeals to mere memory; the small amount of task-work exacted and the subordinate use of text-books; their endeavor to generate in the children "a scientific habit of mind" from the first; and their general, broad, and skilful feeding and exercising of the mental powers, with appropriate instruction and training.

On the moral side, they were distinguished by their earnest and careful development of the moral and religious faculties, while excluding mere theology from the sphere of school work; their constant recognition of the sacredness of science and its laws, as divine revelations and commands for the regulation of the conduct; their superior and unusual discipline, which sought to dispense with all corporal and degrading punishments, and to govern by skilful appeals to the feelings and intellect; their disuse of emulation, prize-giving, and place-taking, and discouragement of appeals to the love of approbation and the selfish propensities; and generally, their making moral and religious training one of the chief aims of education.

These and other features at once stamp these schools as remarkable, if not unique. They show that they are capable of helping towards establishing the education of our children on a scientific basis, with a realistic, human, and life-relating philosophical purpose, their system being all the more valuable that it has not been theoretic and bookish, but has been practically, successfully carried out now for thirty years; and of being worthy models, as they claimed to be, of what national education should become. At the very least, their solutions of certain great educational problems, now and ever affecting the happiness and progress of the people, merit the earnest attention of all students of education, which it is devoutly to be hoped they will receive; for they undoubtedly embodied, — to use the words of Prof. Hodgson, one of their most earnest promoters, whose recent death is one of the greatest losses sustained by education for many years, — "a higher, wider, clearer, more definite, practical, consistent, and inspiriting view of education, as it ought to be and will be." *

* The subjects treated in the foregoing papers are fully and ably argued by the great philosopher, and the history and working of the "secular schools" given in detail, in "Education: Its Principles and Practice as developed by George Combe," lately published, edited by the writer. (London: Macmillan & Co.).

RELATION OF ACADEMIC TO PROFESSIONAL WORK.

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FEW questions in reference to normal schools are of such immediate and vital interest as the one concerning the proper relation of academic to professional work. It is too large a topic to dispose of satisfactorily, in its whole compass, within the reasonable limits of one paper. It includes, in its widest signification, the very definition of a normal school; and one's ideas in reference to the scope of normal-school work will be different according as one views this problem. If one considers that there is a vital relation between these two things, one's school will have a far different form from what it will assume if one takes the view that the relation is merely incidental.

Let us for the sake of clearness glance at the meaning of the question, What is the distinction between academic and professional work? In a general way, academic work is that which is directed mainly toward the acquirement of knowledge, — or, with immediate reference to our subject, that directed toward acquiring the subject-matter of teaching; while professional work is mainly directed toward acquiring a knowledge of the methods and system of imparting knowledge, — or, if it please you better, of training the human mind.

Thus, the course of our normal schools may be divided into two distinct portions: the professional work includes the observation of teaching, the study of the theory and the history of theories of teaching, mental philosophy, and the actual practice of engaging in the work, under the supervision of competent critics; while the second division includes everything else taught, such as geography, arithmetic, algebra, etc., so far as they are included in our courses.

Now, as normal schools lay claim to be professional schools, why do they not devote themselves exclusively to the professional work? Why not exclude those studies which have to do solely with the subject-matter? Why not presuppose this, and, requiring it as a preparation for admission, press on toward the attainment of the real end of normal schools, — the training of candidates for teaching in the principles and methods of the teacher's profession? These questions, if they have reference to the past alone, are easily answered. The early normal schools had to choose one of three courses: 1, exact at admission an examination on the subject-matter required in our schools; or, 2, give the best instruction in teaching they could, letting the previous work be what it might; or, 3, give instruction in the subject-matter themselves. To have done the first would have been to close the schools before they were opened; no set of sane men would have thought of doing the second; the third choice consequently was the only one left, and we therefore find all our normal schools engaged to a greater or less extent in the work of academic instruction, and the defence of that work has been thus far mainly one of necessity. Its apologists have ever left the impression that it was a mere means of transition from one state to another, and have tacitly promised that as soon as possible the academic part should be omitted; that as soon as our common schools and academies should be able to furnish instruction in the academic work, the normal schools would limit themselves to their own peculiar sphere, — that of training in the principles, history, methods, and practice of teaching. Now, it is just here that I wish to take up this question. I do not care to discuss the point, whether it be possible in the present state of education to have a normal school without an academical department. I do not care to investigate whether a purely professional school would not disarm much of the criticism which we hear from every quarter, and all the time, against our normal schools. These are practical and very important questions, oftentimes involving the very existence of particular institutions; but I prefer to press on to what seems to me the vital point so far as the theory is concerned, — viz., what are we to consider the desirable end toward which we are to work? Shall we place before us as our ideal a normal school occupying itself solely and exclusively with that which, in the narrower meaning of the term, is included under professional work? I say within the narrower meaning; for I hope to show, before I finish, that acadamic work is really professional work. Would, then, a normal school without academic work be as good as one with it? If it were possible to get our public schools, or our academies and private schools, to afford the requisite knowledge, ought we to strive for that with a view to eliminating that element from our work? This is, as it seems to me, the real question at issue. It is the subject of this paper.

I shall take it for granted that the chief work of our normal schools is to train teachers for our public schools. It is not their business to train teachers for our colleges, or our higher schools in general. Not that instruction in teaching is unnecessary for college tutors and professors, — most of them would be all the better for a normal-school training,—but that the public, which establishes and supports normal schools, does it for the benefit of the free-school system of the country, and expects that the graduates of these institutions will devote themselves to public-school work.

I shall further take it for granted, without any discussion, that in some school or other the knowledge of the branches taught in our public schools must be acquired, either before or at least simultaneously with the professional work and training. There is no use in trying to engraft professional work on academic ignorance.

Starting out from these assumptions, then (which I take it will not be seriously disputed), my first position is, that mere knowledge of a subject does not imply a power to teach it. I need not dwell upon this statement: we have all known men who, though thoroughly acquainted with the subjects they pretended to teach, were utterly unable to impart their own knowledge, or even to get their pupils to master their text-books; oftentimes through natural inability to teach, still oftener, perhaps, through an ignorance of methods and means. How often do we hear, "He knows enough about it, but he can't teach it"! But we may go still further and say that mere knowledge, with some general idea of methods of the theory and art of teaching, will not qualify one to teach any given subject. Even instruction in the proper methods of teaching some one branch, as for instance arithmetic, is notoriously unsuccessful in accomplishing good results, unless it be immediately followed up by actual work under the supervision of a competent critic. Teaching is an art as well as a science; and while instruction in any one department of the work renders the instruction in other departments easier, it does not render it the less necessary. And here, I claim, is the very point which every normal school should emphasize. No young men or women should be graduated from these institutions and sent out to the public-school work of our country until they have been taken carefully over the ground they are expected to cover in their teaching, or the teaching of which they are expected to supervise.

Our normal schools are of no more value than other good schools if their graduates are not able to go out into school work, and take it up far in advance of those who, with equal knowledge and more extended courses, have not given attention to the principles and methods of teaching. The great difference between a normal-bred teacher and another lies in the greater ease which the former finds in teaching any given subject, or in supervising that teaching. If a man has never taught arithmetic, for instance, he may be no competent judge of success or failure in the work. I have in mind now a superintendent of a large city — a graduate of one of our largest colleges, a teacher of nine years' standing — who is consciously unable to judge of the character of the instruction in the lower grades. He knows, of course, when a teacher gets along easily and is liked by her pupils; but as to whether she uses the best methods in her work, he is unable to decide. This point is an important one, and is too often neglected. A teacher must have made a special preparation for each branch taken up. A good Latin teacher may be a poor geography teacher, a good geography teacher a poor arithmetic teacher, etc. Any one who has the making of a good teacher in him may of course get all this experience by himself; but his pupils, in the mean time, are his victims. The main object of professional schools in every department is to give the student that training in principles and methods which shall preserve the community from the evil effects of malpractice. The chief aim of a medical school is to give its students that experience and knowledge which they could otherwise get only at the expense of their patients. A normal school ought to put a man, at the very threshold of his career, where he could have only come after years of effort and mistakes if left to himself; and if it does not do this, it has no right to exist.

Now, how can the normal school reach this in the best manner? Let us see how it attempts to reach it.

We find that the curricula of our normal schools embrace under the head of professional work, first, the theory of education, including an examination into the constitution of the human mind and its relations to the outer world; also a review of the principal educational theories, with a consideration of the life and methods of eminent educators; some general study of the characteristics of a good teacher, of general school management and school discipline, etc.; of instruction as a whole, and the various other points included under the head of the theory of teaching. We find further what we might call specific theory and art; *i. e.*, the consideration of the proper methods of teaching individual branches, as geography or arithmetic, — a very necessary part of every extended normal course. As a third important point we find observation of actual teaching, done by professors or by pupil-teachers under the direction of professors in the normal school. This is one of the most valuable, if not *the* most valuable exercise connected with the work; especially valuable, because it affords opportunity for a good deal of individual instruction on important points. Finally, actual teaching by the normal pupil crowns the professional work, although it is often done before the final theoretical and historical work is completed. Ordinarily one year's work of three terms is the maximum of actual teaching. By varying the branches a pupil may get some experience in teaching three different branches. But he rarely gets training in more than three, and commonly not in more than two different lines of work.

Now, the more nearly a normal school affords training in all the branches of our common-school course, the better it does its work. A mere glance at the actual work done by the foregoing means will convince us that they are not fully satisfactory. How then can they be supplemented so as to come nearer our ideal? There is only one practical means left; viz., academic instruction in the whole course, with especial reference to a teacher's needs. In no other way can all the details and knotty points be reached, all the difficulties brought up and disposed of. Academic instruction by a proper teacher, who is constantly looking out for an opportunity to call especial attention to the difficulties in the way of teaching, is the shortest and most effective way to reach this end. I am glad to be able to quote an authority on this point. Prof. Bellows, of the Michigan State Normal School, as nearly as I can gather from his report to the Board of Education, is engaged in the very work which I called a little while ago specific theory and art; viz., instruction in the proper methods of teaching individual subjects. He delivered a course of lectures, running through ten weeks, on the methods of teaching arithmetic. "These lectures," he says, "embraced a review of the subject of arithmetic, noting the necessary topical divisions, their proper order and relation to each other, and the most important considerations regarding the nature of the topic and the circumstances of age, etc., of the pupil, to be kept in view in teaching this branch of study. Another considerable part of the work, rendered necessary by a seeming deficiency of academic preparation, has been the training of the students in explanation of processes. It is surprising how few students are found who have any proper idea of what it is to explain an operation. Nine tenths, and probably even a larger proportion of those whom we examine for admission to our work, seem to suppose that telling what is done to get an answer, is giving an explanation." "I have come to feel it," he continues, "to be almost an utter waste of time, if not a trial of patience to be avoided, to examine students for admission upon this point. One of two things, it seems to me, needs to be done; either a better preparation in the matter to which I am referring should be brought by students seeking admission to the school, or we should have more time, especially with the students of our advanced professional courses, for instruction and drill on this point. The teachers we send out will certainly be found wanting in this particular, if something is not done in one or the other of these directions." Here we have this whole matter in a nutshell. These students had passed, as I understand it, an examination on the subject of arithmetic; an examination equivalent to what is demanded to finish arithmetic in our high schools; an examination in which they gave proofs of a knowledge sufficient to justify their taking up algebra, — a knowledge which, in many instances at least, was all that would be required at our best colleges, and yet a knowledge that was so hopelessly deficient for normal-school purposes that a considerable portion of the time had to be devoted to academic instruction. And what was true of arithmetic was equally true of algebra, as Prof. Bellows testifies; and I have no doubt that the same thing was true of every other branch of study pursued in the institution.

Now, one of two things must be done; either academic instruction must be given in the normal school, or our other schools must furnish this drill. I am thoroughly in favor of the first alternative. I believe thoroughly in normal training for teachers, but I protest against an attempt to change our public schools into normal schools. I protest against introducing into the intermediate and grammar grades of our schools that painful and detailed training which is proper — nay, necessary — to one who expects to become a teacher. The vast majority of our children leave school before they are fifteen years of age, and we ought to give them something more than the full and minute training in the elements of the three R's which it is right that teachers should have. The teacher should know *how* and *what* to teach, and in order to do that he must fully conquer the subject; but he need not try to teach the small boy everything that he himself knows about it. The teacher as a boy in school need know nothing more than his companions; but as a candidate for the teaching profession he must know a good deal more, and he must be drilled in a very different way. Now, the proper sort of instruction can be best given in a normal school. The method of teaching a teacher is not always nor often the best method of teaching the practical man or woman. It would be a criminal waste of time for our high schools to teach all their pupils as those of them ought to be taught who expect to become teachers. The proper attention to methods can be profitably given only in a normal school.

In connection with this point, we may notice a fact of great importance in normal-school work; viz., that a teacher will teach a subject as he has been taught it, and not as he has been told how to teach it. The student who comes to a normal school and takes merely the professional work in the narrower sense, who studies merely how to teach, will begin his active work as a teacher just as he learned it himself in the first place. If he acquired the knowledge he possesses in an old log school-house, with the very worst appliances and the poorest teacher and methods, he will begin his instruction just as his teacher began with him. His knowledge of methods and principles will be of vast advantage to him, for after he has come to see the defects in his work, as he probably will in course of time, it will aid him greatly in remedying them; but it is just the business of the normal school to show him these defects before he begins to teach, — to save the boys and girls from the ignorance and inefficiency of the teacher. The only way, or at least the shortest and most effective way, to break the power of the spell which those early associations and that first training exercise over the students, is to take them over that ground again, and carefully correct those early impressions, and train them to new modes of thought and new methods of work. A teacher who has been connected for several years with one of our largest normal schools told me recently that he had made a study of this very point, and that he was struck with the fact that all the normal students who on entering the school had passed examinations in the elementary branches, geography, grammar, arithmetic, and history, and had afterwards gone out to teach, had all done their poorest work in just those branches which they had neglected to take in the normal school, and in many cases their work was so poor that it was to be considered a failure, while their teaching of other branches was fair to good; a striking confirmation of the view that a teacher will teach as he has been taught, and not as he has been told how to teach. By the phrase "being told how to teach it," I refer to such directions as would be given in a course of lectures on the proper methods of teaching.

It may be objected to the above statement that inasmuch as the normal teacher would use methods adapted to adults, the normal pupils would not, after all, get the methods that they could use in their own teaching. That would be very true if the teacher should confine himself simply to an ordinary academic drill. But it is a very important part of his business to call the attention of his pupils constantly to the points in which they must deviate from his methods in their subsequent work. The point is that such directions would have a value only in connection with a vigorous academic drill.

Let us examine the course of instruction in the Prussian normal schools, with reference to the point under discussion. We take these schools because they are all formed after one model, and there, if anywhere in the world, they are able to have purely professional schools; there, if anywhere, they are able to demand at entrance an examination in all the subjects which we generally require for graduation.

I find, on examining the provisions of the law in reference to normal schools, published in October, 1872, by the Prussian Minister of Public Instruction, that they required for admission to the normal school an examination in all the studies afterwards pursued in the course, except theory and art, meaning by that what we included under our term "professional work."

They are examined in religion, language (grammar, rhetoric, criticism), mathematics (algebra, arithmetic, geometry), music, history (ancient and modern), natural sciences (physics, botany, zoölogy, chemistry, physiology), and gymnastics. Now, on comparing the work done in the normal school, we find that they begin at the very beginning in every branch. In German, for instance, they begin with the parts of speech, declension, comparison, conjugation, and follow the subject up through syntax, analysis, rhetoric, punctuation, and criticism. In history they begin with the Greeks, and end with Prussian history. They begin arithmetic, geography, and natural science, writing and drawing.

Now, what is their idea in giving instruction in the very elements of these elementary studies? It is not so much to give academic instruction, considered *as* academic instruction, but rather because they consider this careful study and review of all these elementary branches as a part and parcel of the strictly professional work, and as the shortest way of reaching thorough professional drill in all these various subjects. As if to dispel all doubt as to the purpose of this work, we find the minister telling us in the tenth section of the law, "The instruction which the normal pupils receive is expected to be in its form a model of that which they themselves as teachers will have later to impart. The directors have to insist strictly on correctness both in the presentation of the subject-matter on the part of the teacher, and in the oral and written reproduction of the same on the part of the pupil. The instructor is expected to present simultaneously with the subject-matter the method also." Here you see we have the key to the Prussian view of this whole subject. It is not academic instruction but professional work, and that is its justification.

Now, if Prussia, a country which perhaps better than any other could exact a high grade of preparation, a country nearly all of whose candidates for admission to normal schools have enjoyed normal-school training, in the sense at least that their teachers have been normal-trained men, — if such a country still deems it of great importance to afford academic instruction in its normal schools, if its theorists consider that its teachers should be taught arithmetic in a different way from that in which its ordinary scholars are taught, surely that affords an argument for the necessity of a similar course here, where our pupils are wretchedly prepared, and where they can in many cases not find good preparatory instruction at all.

In conclusion, let me summarize: What is the relation of academic to professional work? My answer is, It is vital and not merely incidental. Mere knowledge of a subject does not imply a power to teach it. Mere knowledge with some general instruction as to methods and principles, nay, even with particular instruction as to methods in individual branches, is not sufficient to place the student on that vantage ground which every normal-trained student should occupy. The instruction proper to the teacher cannot be found in our public schools at present, and ought not to be found in them in the future; it remains, then, for our normal schools to furnish it. Further, a teacher will teach as he has been taught; consequently the shortest method of attaining the best teaching in our schools is to give our teachers the best teaching. And I am inclined to think that if in any individual case it were necessary to let one or the other go, in general the professional work could be better spared than the academic. I believe that the student who goes out to his work with a thorough normal academic drill in the branches he expects to teach will do better work than one who, while deficient in these branches, has studied the theory of teaching. I claim, further, that he will not only do better work at first, but that he will be more likely to improve, — to attain to that knowledge of principles which will free him from the trammels of previous education and habit.

NOTES ON AN INFANT.

BY J. H. HOOSE.

[Dr. John M. Gregory indicates (EDUCATION, IV.) some of the provinces of research by those who expect to learn the facts upon which to construct a science of education. The following notes were made by Mr. F. H. Champneys, upon his own infant son, and extend from the moment of birth through a period of nine months (*Mind*, XXI.).]

Sucking. — The first thing the child did, when left alone a few minutes after birth, was to suck the blanket in which he was wrapped.

When hungry, he would cram his hands into his mouth with varying precision, and suck them hard. This was observed ever since birth, and seemed to be adopted without hesitation as a means for temporarily appeasing hunger.

At four days old he pushed away his mother's breast when satisfied.

The touch of a warm hand did not induce sucking movements.

No practice seemed to be required for directing the hands to the mouth.

Sneezing was always accompanied by violent movements of all the limbs, the thighs being flexed on the abdomen, the forearms bent, and the elbows thrust forward.

The purpose of the flexion of the thighs on the belly was probably partly to relieve the tension of the suddenly contracted abdominal muscles; but the movements of the arms (and partly those of the legs also) probably had for their cause the necessity for relief of what is called a nervous discharge of great amplitude, such as a sneeze.

Crying was performed at first without any squaring of the mouth. The sound can be exactly expressed by "uga," as pronounced in German. This must have been produced by closing the fauces by the contact of the pillars of the fauces and the soft palate, so as to send all the sound through the nose; the vowel sound being then produced by separating the soft palate and pillars of the fauces, and allowing the sound to come through the mouth.

The child appeared to cry at first for three reasons: (1) From a feeling of loneliness or fright on awakening from sleep, which was relieved by being taken in the mother's or nurse's arms, or even by a touch; (2) from hunger; (3) from pain. The cries seemed to be all different in character.

Smiling was reported at five and a half weeks, but not certainly observed before the end of the eighth week. It was often accompanied by sucking movements. This shows the association of two pleasurable ideas.

Weeping. — Tears were shed two days before the end of the fourteenth week.

Seeing. — The eyes were first fixed on a candle when a week old. On the same day the eyes were fixed on one of the parents for the first time.

Opening of the eyes was accompanied by wrinkling of the skin of the forehead; the wrinkles, being horizontal, were due to the frontalis muscle. They resembled those produced in adults during an effort to open the eyes when tightly closed, either on account of very dazzling light or of a foreign body in the eye; but were probably only necessitated by redundancy of skin, which is very observable in a young child, and most young animals. This wrinkling gradually ceased.

The ninth day was the first on which anything like habitual opening of the eyes occurred.

It was not before the fourteenth day that the child *took notice* of persons or moving objects.

From the time that he began to use his eyes, bright light gave him much pleasure, and he never blinked except on a change from comparative darkness to bright light; when the moment of this change was past he would gaze for a long time with much apparent delight, and with wide-open eyes, at a lamp or at the gas, however bright. This fact makes it unlikely that the frowning mentioned above was due to being dazzled. He was first able to see himself in the glass at eight weeks old, the experiment having been often used before.

Hearing. — During the first week the child would not start at any noise, however sudden, when unaccompanied by vibration of the room or bed. For instance, no notice was taken of hands loudly clapped close to his ear; but slamming of a door made him start. Just the same starting was observed immediately after birth, when the scale in which he was being weighed went down with a jerk.

It was very difficult to decide when the child really heard first. At fourteen days old he would turn his eyes to his mother when she spoke to him, but even then did not start at sudden noises, however loud, unless accompanied by jerks or vibrations; so that the apparent power of hearing his mother's voice may have depended on his feeling her breath on his face, for it was only when her face was turned towards him while she spoke that he turned his eyes toward her.

In connection with the late appearance of this sense, we must remember that the tympanum at birth is packed with areolar tissue, which only gradually becomes absorbed after birth.

Reflex Actions. — Among these may be noticed the spasmodic start which occurred on any jar or vibration, previously noticed, and also the fact that micturition was always or nearly always indicated by a slight shiver.

The slight provocation necessary for producing a convulsion in children is a well-known sign of their great irritability to nervous stimuli.

Exactly at four weeks old the child started at sudden noises if unexpected, but would not start twice at the same noise if not excessively loud.

Taste. — The child rejected all things given to him cold, even milk, but would take various things not especially nice (such as cod-liver oil) if warm. The temperature seemed to be of more consequence to him than the taste.

Voluntary Movements. — The arms were far more purposive in their movements than the legs, from the very first. The movements of the arms from the first were like those of striking with the fists; the fists, however, being only partially clinched.

Walking. — When one day less than nineteen weeks old, the trial was made of supporting the child on the floor with the feet just touching the ground, and moving him forward. The movements of the legs were always alternate and purposive, each step being perfectly formed; though the feet were lifted unnecessarily high, there was no hesitation nor irregularity. Only when he was lifted too high for one or other foot to touch the ground was this alternate movement interrupted, the foot which failed to reach the ground making a fresh step. It was obvious that the contact of one foot with the ground was the stimulus for moving forward the other foot.

Attempts at Talking. — From nine months the child distinctly imitated the intonation of the voice when any word or sentence was repeated in the same way several times.

About the thirteenth week he began to appear to attempt to join in conversation with a variety of articulate sounds, if talking was going on in the room.

Fear. — The first symptom of fear was noticed at about nine months. It was excited by an unusual sound in the room, but not in the child's immediate neighborhood; he opened his eyes very wide and burst out crying. The second occasion was at about ten months, when sound was again the exciting cause: a toy was given him which squeaked on pressure; he burst out crying, and cried whenever it was offered him, but in a short time he got used to it, became very fond of it, and made it squeak himself.

Remarks. — Records like the foregoing are valuable to biologists, and interesting to readers of all classes, yet they meet only partially the wants of students of educational science. Education is a product whose germs were planted in the souls of the original man and woman. Certain functions of mind and body are fundamental to the very existence of man, and belong to all men. Dispositions of mind, traits of character, forms of body, and tendencies generally, are superinduced upon these original functions, and unite with them to make up the thread and thrum of the fabric of human life; the texture of this fabric is colored variously by obstinate years, and strengthened or made weak by the lives of many generations. A child at its birth represents a sum of original functions, added to a sum of traits and accomplishments in embryo which have survived through its ancestral lines and have been implanted in it by its parents. These descending idiosyncrasies are so numerous that children of the same parents frequently inherit but few of them in common. The educator wishes to know more than the biological facts of life-force and growth of the child; he inquires concerning the extraordinary propulsive energies and procreative capacities of mind with which parentage has endowed it. These idiosyncrasies of a child constitute its personality, and reveal its ancestral families in their personalisms. Parents would perform a valuable work for pedagogical

science if they would record the first appearance and subsequent development of these inherited peculiarities, together with their relative degrees of activity and intensity, as these phenomena indicate and measure the persistence of these differentia.

Examples to illustrate the Remarks. — (1.) A daughter of the writer placed her hands beneath her head when sleeping, when she was but a few days old, quite after the manner of her father, from whom this habit descended to her. (2.) At an early age she manifested great pleasure and interest in peculiar and unusual vocal sounds, developing rapidly much skill and readiness in imitating them. This idiosyncrasy she inherited from her father, who received it from his mother, who possessed extraordinary aptness of voice in imitating tones of musical instruments. (3.) As soon as the child could hold a cup with any ease, she extended the little finger of the hand in which she held it, doing it in so peculiar a manner as to reveal unmistakably an inheritance through her mother, in whose family this idiocrasy is marked. (4.) At the age of twenty months the child could speak but few words plainly, compared to the number spoken by children of her age generally. There are no records to show from which parent this backwardness descended, or whether it is original with her.

The practical value of records of this nature would be great to those who are teaching children; the facts of personality would guide the invention of modes of imparting instruction. The writer returns to idiocrasy numbered (2) above, and refers to some circumstances connected with his school days. He possessed considerable flexibility of voice when a lad, and could pronounce words at sight; yet he read poorly, and with a voice whose natural suppleness and warmth were stiff and cold. Looked at from the interval of years, the boy did not carry the native spirit of his voice into reading; those who taught him to read did not show him that the sentient and emotional qualities of his voice were those which must be seized, trained, and preserved in habits, before he could interpret a period of a printed page in the schoolroom as well as he could express a sentence of his own creating when on the play-ground.

Finally, educators require data of the kind noted in the body of the above text, in order to construct a general science of education; and they must have data of the nature alluded to in the remarks following the notes, in order to enable teachers to impart instruction in those modes which shall produce the highest value of the science when applied in special practice. These data, being so diverse in differentiæ, must be voluminous, and subjected to the most rigid forms of examination, to discover the unities which they embody.

KANT AND HIS ENGLISH CRITICS.*

THE present year is the centennial anniversary of the publication of Kant's immortal work, the "Critique of Pure Reason." In honor of this event, celebrations have been inaugurated in Europe and America. There was one at Saratoga on the 6th of July, called together in response to the suggestion of Prof. J. W. Mears, of Hamilton College. The Concord School of Philosophy devoted the first week of August to lectures on Kant. Able professors presented able papers at both of these celebrations. Immanuel Kant was a genius so vast, comprehensive, and profound in philosophy, that such lights as Descartes, Spinoza, Lord Bacon, and even Leibnitz became pale when his star ascended the sky. Like Aristotle himself, "the father of all those who know science" (as Dante calls him), he has been the origin of widely different schools of philosophy. No system of thought since his time has retained any hold on the respect of thinkers unless it defined its relation to Kant's system, and fixed its location by Kantian latitude and longitude. Kant's "Critique of Pure Reason" has furnished the "equator" and the "first meridian" to everything in philosophy that has been written in this century worth the reading. Even at second hand, or fourth, eighth, or tenth hand, his powerful, critical mind has penetrated to inferior writers, and given them their "First Principles." Herbert Spencer's "Unknowable" is a statement of the Kantian critical position at fourth hand, seeming to come through Mansell or some other disciple of Sir William Hamilton, from the latter who found it in the Kantian original, but omitted to bring with it the wonderful doctrine of the "Antinomies," which would certainly have made strange havoc with Spencer's doctrine of "The Knowable," had he studied that doctrine.

Just at this time the press teems with new books on Kant. Many have appeared, and very many more are announced, privately and otherwise. Dr. Hutchison Stirling, of Edinburgh, who is said to know the great work of Kant by heart, and who wields the most powerful literary pen in the field of philosophy, is soon to publish a work on Kant, critical and expository. Every year it is becoming more and more the settled routine in our colleges to begin any thorough philosophic study with a discussion of the Kantian Critique. Especially in the realm of moral philosophy are the Kantian ideas zealously expounded. Ethical philosophy would have become extinct in this age had it not been for Kant. Kant has founded it on an adamantine rock.

The subsequent German philosophy rose on the Kantian basis: edifices as wonderful as the systems of Plato and Aristotle, Proclus and Plotinus;

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* Kant and his English Critics. By John Watson, LL. D. (Glasgow University), Professor of Philosophy in Queen's University, Kingston, Ontario. Glasgow University Press: Mackelhose. (New York: Messrs. MacMillan & Co.)

marvellous revelations of the nature of the thinking activity, and of the objective, substantial existence of mind as the principle of the world. The Greek movement in thought is the only other great philosophical movement, and it is an objective, ontological system. The German movement is psychological, and therefore fits the want of modern thought, which is subjective, sceptical, and scientific.

The work of Prof. Watson is destined to receive much attention from Kantian students. Its view is more favorable to the results of Kant than most books on the subject. Its author has written many very acute articles for the "Journal of Speculative Philosophy," and holds a position in the foremost rank of philosophical thinkers in our day. He is a man of great and growing insight, specially gifted in the comprehension and interpretation of this great psychological movement in philosophy inaugurated in Germany. In using this word "psychological" to designate the great German movement, we are not unmindful that the Scotch philosophy has been called "psychological" also. Without questioning its value in its sphere, we would suggest that it belongs chiefly to the department of "anthropology," or the science of the interaction of the soul and the body; because it deals chiefly with phenomena of that realm (the laws of association of ideas, the matters of immediate sense-perception, sleeping, dreaming, etc., etc.), and does not recognize any such thing as the observation of a mental activity as such. The "Dialectic" of the German philosophy has its significance in this work of seizing activities and forms of mind. Kant, it is true, was of Scotch descent, but his thinking is thoroughly Teutonic. With the Scotch "common-sense," we never rise to an idea of thinking activity unconditioned in sense-perception, and hence to knowledge of the possibility of a divine mind,—such as St. Anselm, St. Augustine, St. Thomas Aquinas conceived. And yet the Scotch philosophy has had a great function to perform in the development of the Protestant movement in religious thought, although chiefly of a negative character. Judging by the movement of the Scotch mind to day, that wonderfully tenacious and alert intellect is to change its basis to the German starting-point and retain its strong hold on thinking minds. It seems that Prof. Watson is a graduate of the University of Glasgow.

It is difficult, in a short notice, to give an adequate view of the varied contents of this work. With a statement of the whole of the positive side of Kant's "Critique of Pure Reason," and a general account of the results of the "Dialectic," the author interweaves a criticism of what he regards as the misapprehensions of Mr. A. J. Balfour, Mr. Henry Sidgwick, and Dr. Hutchison Stirling, together with an examination of the main position of English Empiricism as represented by Herbert Spencer and the late Mr. George H. Lewes. To all this he adds a sympathetic criticism of the "Critique" itself, intended to show wherein Kant has failed to free himself from the benumbing influence of his dogmatic predecessors.

The first chapter, besides containing a criticism of Mr. Balfour's objection to the "Transcendental Method," gives a statement of the main aim of the "Critique," and of the method followed by Kant in the construction of his philosophy. The marks which distinguish criticism from dogmatism are stated, and the revolution accomplished by Kant is shown to lie in his transcendence of the Sensationalism of Locke, as developed to its issues in scepticism by Hume, and of the dogmatism of Wolff and others.

In the second chapter, an exposition is given of Kant's views of Time and Space. This is based mainly upon the "Prolegomena" and the "Transcendental Æsthetic" of Kant. It illustrates the "critical" as distinguished from the "dogmatic" conception of knowledge. An examination is here made of Mr. Sidgwick's objection against Kant, that he has two different ways of meeting the charge of Idealism, one being followed in his "Prolegomena," and the other in his "Refutation of Idealism," inserted in the second edition of his "Critique of Pure Reason." Prof. Watson here contends that Kant has only one way of refuting Idealism, and that the differences which Prof. Sidgwick finds are only superficial.

The third chapter deals with the "Transcendental Analytic," which is the central part of Kant's theory of knowledge; he seeks to show that in it Kant has carried further the transformation of ordinary conceptions, — this transformation which he had begun in the "Transcendental Æsthetic." The relation of the categories to the various classes of judgment, to the "Deduction of the Categories," and to the "Schematism," are explained by Prof. Watson.

In the next chapter, after a short statement of Kant's view of the relations of metaphysics and psychology, a full examination of the "Psychology" and "Psychogeny" of Mr. Lewes is made, — in which the author shows that the doctrine of Evolution, as applied by recent Empiricists, has no bearing upon Kant's problem, and that a confused conception of what that problem really was is responsible for the supposition that it has such a bearing. It is further shown that the doctrine of Lewes, that the physical organism is the only subject of knowledge, and his view that the rise of knowledge can be explained by the facts of biology, rest upon uncritical assumptions, confusions of thought, and ambiguous language.

Chapter fifth gives a statement of the meaning of the Principles of Judgment, and examines generally the view taken by Dr. Stirling of the distinction of the "Mathematical" and "Dynamical" categories and principles.

Prof. Watson next goes on to give a statement of Kant's proofs of those principles, and devotes a good deal of space to the explanation of the principles of Substance and Causality. In view of the recent controversy on this subject, our author goes over carefully each step of the Kantian proof, in order to prepare us for the following chapter, in which he undertakes an examination of Dr. Stirling's position in regard to Kant's doctrine of Substance and Causality, and, as well, of Mr. Balfour's position in that regard. Prof. Watson interprets the Kantian doctrine differently, and attributes their objections to the interpretations which they have severally given to the

Kantian exposition. He regards his own view as the only correct interpretation.

The eighth chapter contains a summary of Kant's "Metaphysic of Nature," dealing with the conceptions of matter, motion, and force, and by far the fullest presentation of this work of Kant to be found in the English tongue. After this he devotes a chapter to Spencer's doctrines on Matter and Force in his "First Principles," and finds therein many unjustified assumptions and much inconsistency.

Chapter tenth contrasts Spencer's "Unknowable" with Kant's "Noumenon," showing in detail how superficial is the resemblance between them; and in particular, that while the "Thing-in-itself" of Kant is a hypothetical conception, the "Great Reality" of Mr. Spencer is dogmatically asserted to exist, while yet it is declared, inconsistently, to be "unknowable." It is also shown that the transfigured Realism of Mr. Spencer is an incoherent theory, and that its incoherence is not superficial but radical. He shows also how Mr. Spencer, in his account of the "Substance of Mind," falls into the paralogisms detected by Kant in all dogmatic psychologies; and that when he (Mr. Spencer) attempts to show that human reason falls into "alternative impossibilities of thought" when it attempts to comprehend the absolute, he has stumbled upon Kant's "Antinomies of Pure Reason," without seeing, as Kant did, how they may be solved.

The last two chapters are devoted to an extended examination of Kant's own theory of knowledge. In the first of these, the abstract opposition of the *a priori* and *a posteriori* elements of knowledge, and of sense as receptive and thought as originative, the want of logical development in the system of categories, and the contrast of pure and mixed categories, — all these are held to indicate a certain imperfection in Kant's way of looking at things, which must be avoided in a true theory. The book concludes with an examination of Kant's view of the different elements combining to produce knowledge, — sensation, the pure forms of space and time, the categories, the schemata, and the "pure I," — the gist of which is to show that while the main result of the "Critique" on its positive side is to bring into prominence the central truth that knowledge is a synthesis of subject and object, intelligence and nature, Kant has sometimes allowed himself to be confused by psychological distinctions that are either inadequate or belong purely to psychology.

WM. T. HARRIS.

THE NATIONAL COUNCIL OF EDUCATION.

THE National Council of Education was organized at the annual meeting of the National Educational Association in 1880, held at Chautauqua, for the purpose of aiding the work of that Association by furnishing maturely considered conclusions in regard to important questions arising in the province of education. It was necessary to form a deliberative body composed of the representative teachers and educators in the nation; and this was accomplished by a provision that the five departments of the National Association should elect, each, three members, and the Association as a whole twelve members more, giving twenty-seven members elected by the National Educational Association. These twenty-seven elect twenty-four associates, and thus fifty-one members are provided for, — the entire membership of the Council. The term of service in the Council is six years. Doubtless there are as good men in the National Educational Association outside of the Council as inside it; but the twenty-seven elected members are its chosen representatives. It may be supposed that the twenty-four members elected by the twenty-seven are selected with even greater care from the list of prominent educators in the nation. It is true, and will remain true, that outside of the National Association will be found a far greater number of able men engaged in teaching than within it; nevertheless, there is no feasible method of securing from these a selection of representatives who will act in a council. The organization of the Council as it is may therefore seem the only practical one.

At the late session of the National Educational Association in Atlanta, the Council held its first annual meeting for work. A preliminary meeting had been called to consider the reports of the committees, and a fair attendance had been secured on Lookout Mountain, just previous to the Atlanta meeting. A number of reports were in readiness, treating very important subjects. It was clear enough that the Council must settle many questions in advance, regarding the forms of its own work, before reaching any results that would do to submit to the National Educational Association. There were the questions in regard to the form in which the conclusions of the Council should be presented; in regard to the amount of responsibility assumed by the entire body for the views contained in the reports adopted by it; and chiefly there was the question of formulating views which all could indorse as true. While the meeting at Atlanta did not complete anything which could be reported as its verdict to the National Association, yet exceedingly important preliminary work was undertaken and accomplished. It was seen what advantages a small body of regular members has over a large body of constantly varying membership. There could be animated debates carried on, and genuine progress made towards a common conviction on the question under debate. This, it was evident, was the most valuable work of the Council, — to digest its opinions, offered as solutions to the edu-

THE CONCORD SCHOOL OF PHILOSOPHY.

After three sessions in as many years, this unique academy has reached a form in which it seems to interest the public deeply, and to be performing its own proper work with good effect. Of course it is not yet fully understood by the newspaper correspondents who write about it, and who indulge in much nonsense or fine writing, or both, concerning it, — now puffing this lecturer, now scoffing at that, and displaying, to those who really attend the school and comprehend its results, their own superficial acquaintance with it. One or two of these correspondents, who assume to be oracles in regard to it, though staying away from most of the lectures they have reported, have made themselves ridiculous and brought the school into some little contempt by their airs and revelations. The best way to find out what has been done at Concord since Mr. Alcott opened the school in 1879, is of course to go there and see while the lectures are going on. Another way, not so good, but the only one available to most persons, is to read the reports of the lectures and conversations, which this year have been fuller than ever before. The least instructive way is to read the inferences and guesses of newspaper men who drop in once a week and stay an hour, or who sit at a distance and construct out of their inner consciousness a theory of what the Concord School has been, is now, and is going to be. Vennor's weather predictions have about the same practical value that such writing possesses.

The school seems to have been from the first very modest in its aim and method; not puffing itself and seeking to create a sensation, but going to work steadily and with a definite plan to *teach* something. It has never been so successful in realizing this purpose as during the late session; never so much like a *school*, and so little like those show lectures and sermons in which ambitious mediocrity advertises itself nowadays, and which have given many persons a prejudice against the Concord exercises, supposing them to be of the same sort. But such lectures are quietly excluded from the list, or if accidentally they appear once, are silently dropped. The list is carefully made up year by year, not from lecturers who itch to say something, but from those who seem to have something to say which the school ought to hear; not for the sake of making converts to Hegel's logic, or citizens of Plato's republic, or one-sided disciples of any sect or man, but in order to form some image of philosophy in the mind, and some purpose towards "plain living and high thinking" in the soul. For both objects, literature is indispensable; and therefore the inseparable conjunction of metaphysical and literary instruction, not only in the Concord School, but in all the great philosophic periods of history.

We do not understand that there is any purpose on the part of the managers of the school to give up its literary features; but on the contrary, to give its philosophy a higher literary form, as has manifestly been done since the first session in 1879. Indeed, the most marked effect yet produced by

cational questions of the day. The free debate, carried on with as little formality as a conversation, made such modification possible, and each one could correct the partialness of his own insight through the views presented by his fellow-members. Those who attended the meetings of the Council came away with the conviction that the new organization would be of very great value to the cause of education, not only in aiding the Association, but especially in the way of maturing the views of the members of the Council. Many had been sceptical on the subject, and had supposed the Council of doubtful utility. Now it was seen by all that such a compact body for hand-to-hand debate has great possibilities for usefulness.

It is conceded that the mere statement of results reached by the Council will be of less value to the educational intellects of the country than a discussion of the grounds for the conclusions reached. It is better to produce conviction through a thorough study of the subject, than to furnish an oracular dictum to be quoted as authority by the average teacher. But even authority has great practical use for the working masses of mankind. It is better that teachers shall adopt correct views without a full comprehension of them, than wrong views with any amount of deep reasoning at the back of them.

Within the past ten years there has been a succession of attacks on the school system of the country, initiated by men of first-class ability, and sustained by the press of the nation. No doubt the people and the press are unwavering in their support of the adopted school system; but the attention given to these attacks indicates on the part of the public a widespread demand for a better understanding of the grounds of its support of the schools than is given by a mere blind following of tradition, which uses fine names and calls the public-school system the safety of the Republic, the defence against anarchy, etc.

Here is a field of work for the Council, — a field of indefinite size, — for investigation and conclusion and formulation and expounding of grounds and reasons. If the Council shall furnish only negative impulse to educational thought, and arouse great opposition on the part of educators jealous of their right to formulate their own conclusions, yet this very circumstance will be a great boon to the profession. The choice of subjects will remain with the Council, and the opponents will simply furnish volunteers to the cause of clearing up and formulating results in the most important matters of education.

Whatever, therefore, may have been the outlook for the Council at its first appearance, its future is now assured. It remains only to secure more frequent meetings, and to hold these meetings when they will not interfere with those of the National Association. Perhaps it will be found advantageous to hold sectional meetings, — portions of the Council meeting at convenient places, central to the members attending, and holding their round-table sessions to discuss the questions propounded for solution.

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the school has been the change wrought on the style of its principal teachers. Dr. Harris is less German, Mr. Alcott less vague, Dr. Jones less extemporaneous than at first; while the lecturers who do not strictly regard the philosophic form of utterance will be found to have approached it more nearly from year to year.

A special feature at Concord this year has been the attention paid to Kant, in consequence of the anniversary of his first appearance as a world-instructor in philosophy. Up to 1781, Kant had been a narrow professor, like so many in our modern universities; from that date he takes rank as the maker of an epoch. In celebrating this epoch, the Concord School did not, as some of its shallow critics imagine, commit itself more unreservedly than before to the gerund-grinding form of metaphysics; it simply paid due respect to a great thinker by setting his work in the broad light that competent students of various opinions and habits of thought could shed upon it. The publication of the Kant Papers, by Dr. Harris, in his "Journal of Speculative Philosophy," will give an example, the best yet afforded in print, of what the Concord School can do, — but an example of its activity only on one side.

The great merit of that singular combination of camp-meeting and university is, to our mind, that it unites in one corps of instruction, one conference of enthusiasts, the independent opinions and the consentaneous spirit of three or four different schools of philosophic thought. *E pluribus unum* could be its legend, not less than that of the nation in which it sprang up, and whose best purpose it so well illustrates that the many defects in its apparatus and achievement thus far can well be overlooked. To force this natural unity — this *concordia discors* — into a hard and fast didactic system would have some apparent advantages, especially for narrow minds; but it would destroy the main object for which, as we read it, the school exists. Therefore, as its favorite poet says, let

> "The young lambs bound
> As to the tabor's sound"

in the ever-youthful utterances of Mr. Alcott; let the Platonic and Aristotelian "cataracts blow their trumpets from the steep" of Dr. Jones's and Dr. Harris's philosophy; and let (occasionally) "the winds come to us from the fields of sleep" as we contemplate "subject-objectivity" in Kant and Hegel. The observant spectator will say, as Wordsworth did,

> "Ye blessed creatures, I have heard the call
> Ye to each other make; I see
> The heavens laugh with you in your jubilee."

The year in which a spiritual philosophy, earnestly taught and generously held, makes such a "dent" in the practical American mind as Concord has now made, must be regarded by us, at least, as an acceptable year of the Lord.

A CRISIS IN AMERICAN HISTORY.

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The great merit of that singular combination of camp-meeting and university is, to our mind, that it unites in one corps of instruction, one conference of enthusiasts, the independent opinions and the consentaneous spirit of three or four different schools of philosophic thought. ***E pluribus unum*** could be its legend, not less than that of the nation in which it sprang up, and whose best purpose it so well illustrates that the many defects in its apparatus and achievement thus far can well be overlooked. To force this natural unity — this *concordia discors* — into a hard and fast didactic system would have some apparent advantages, especially for narrow minds; but it would destroy the main object for which, as we read it, the school exists. Therefore, as its favorite poet says, let

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science if they would record the first appearance and subsequent development of these inherited peculiarities, together with their relative degrees of activity and intensity, as these phenomena indicate and measure the persistence of these differentia.

Examples to illustrate the Remarks. — (1.) A daughter of the writer placed her hands beneath her head when sleeping, when she was but a few days old, quite after the manner of her father, from whom this habit descended to her. (2.) At an early age she manifested great pleasure and interest in peculiar and unusual vocal sounds, developing rapidly much skill and readiness in imitating them. This idiosyncrasy she inherited from her father, who received it from his mother, who possessed extraordinary aptness of voice in imitating tones of musical instruments. (3.) As soon as the child could hold a cup with any ease, she extended the little finger of the hand in which she held it, doing it in so peculiar a manner as to reveal unmistakably an inheritance through her mother, in whose family this idiocrasy is marked. (4.) At the age of twenty months the child could speak but few words plainly, compared to the number spoken by children of her age generally. There are no records to show from which parent this backwardness descended, or whether it is original with her.

The practical value of records of this nature would be great to those who are teaching children; the facts of personality would guide the invention of modes of imparting instruction. The writer returns to idiocrasy numbered (2) above, and refers to some circumstances connected with his school days. He possessed considerable flexibility of voice when a lad, and could pronounce words at sight; yet he read poorly, and with a voice whose natural suppleness and warmth were stiff and cold. Looked at from the interval of years, the boy did not carry the native spirit of his voice into reading; those who taught him to read did not show him that the sentient and emotional qualities of his voice were those which must be seized, trained, and preserved in habits, before he could interpret a period of a printed page in the schoolroom as well as he could express a sentence of his own creating when on the play-ground.

Finally, educators require data of the kind noted in the body of the above text, in order to construct a general science of education; and they must have data of the nature alluded to in the remarks following the notes, in order to enable teachers to impart instruction in those modes which shall produce the highest value of the science when applied in special practice. These data, being so diverse in differentiæ, must be voluminous, and subjected to the most rigid forms of examination, to discover the unities which they embody.

KANT AND HIS ENGLISH CRITICS. *

THE present year is the centennial anniversary of the publication of Kant's immortal work, the "Critique of Pure Reason." In honor of this event, celebrations have been inaugurated in Europe and America. There was one at Saratoga on the 6th of July, called together in response to the suggestion of Prof. J. W. Mears, of Hamilton College. The Concord School of Philosophy devoted the first week of August to lectures on Kant. Able professors presented able papers at both of these celebrations. Immanuel Kant was a genius so vast, comprehensive, and profound in philosophy, that such lights as Descartes, Spinoza, Lord Bacon, and even Leibnitz became pale when his star ascended the sky. Like Aristotle himself, "the father of all those who know science" (as Dante calls him), he has been the origin of widely different schools of philosophy. No system of thought since his time has retained any hold on the respect of thinkers unless it defined its relation to Kant's system, and fixed its location by Kantian latitude and longitude. Kant's "Critique of Pure Reason" has furnished the "equator" and the "first meridian" to everything in philosophy that has been written in this century worth the reading. Even at second hand, or fourth, eighth, or tenth hand, his powerful, critical mind has penetrated to inferior writers, and given them their "First Principles." Herbert Spencer's "Unknowable" is a statement of the Kantian critical position at fourth hand, seeming to come through Mansell or some other disciple of Sir William Hamilton, from the latter who found it in the Kantian original, but omitted to bring with it the wonderful doctrine of the "Antinomies," which would certainly have made strange havoc with Spencer's doctrine of "The Knowable," had he studied that doctrine.

Just at this time the press teems with new books on Kant. Many have appeared, and very many more are announced, privately and otherwise. Dr. Hutchison Stirling, of Edinburgh, who is said to know the great work of Kant by heart, and who wields the most powerful literary pen in the field of philosophy, is soon to publish a work on Kant, critical and expository. Every year it is becoming more and more the settled routine in our colleges to begin any thorough philosophic study with a discussion of the Kantian Critique. Especially in the realm of moral philosophy are the Kantian ideas zealously expounded. Ethical philosophy would have become extinct in this age had it not been for Kant. Kant has founded it on an adamantine rock.

The subsequent German philosophy rose on the Kantian basis: edifices as wonderful as the systems of Plato and Aristotle, Proclus and Plotinus;

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* Kant and his English Critics. By John Watson, LL. D. (Glasgow University), Professor of Philosophy in Queen's University, Kingston, Ontario. Glasgow University Press: Mackelhose. (New York: Messrs. MacMillan & Co.)

pleted. Ordinarily one year's work of three terms is the maximum of actual teaching. By varying the branches a pupil may get some experience in teaching three different branches. But he rarely gets training in more than three, and commonly not in more than two different lines of work.

Now, the more nearly a normal school affords training in all the branches of our common-school course, the better it does its work. A mere glance at the actual work done by the foregoing means will convince us that they are not fully satisfactory. How then can they be supplemented so as to come nearer our ideal? There is only one practical means left; viz., academic instruction in the whole course, with especial reference to a teacher's needs. In no other way can all the details and knotty points be reached, all the difficulties brought up and disposed of. Academic instruction by a proper teacher, who is constantly looking out for an opportunity to call especial attention to the difficulties in the way of teaching, is the shortest and most effective way to reach this end. I am glad to be able to quote an authority on this point. Prof. Bellows, of the Michigan State Normal School, as nearly as I can gather from his report to the Board of Education, is engaged in the very work which I called a little while ago specific theory and art; viz., instruction in the proper methods of teaching individual subjects. He delivered a course of lectures, running through ten weeks, on the methods of teaching arithmetic. "These lectures," he says, "embraced a review of the subject of arithmetic, noting the necessary topical divisions, their proper order and relation to each other, and the most important considerations regarding the nature of the topic and the circumstances of age, etc., of the pupil, to be kept in view in teaching this branch of study. Another considerable part of the work, rendered necessary by a seeming deficiency of academic preparation, has been the training of the students in explanation of processes. It is surprising how few students are found who have any proper idea of what it is to explain an operation. Nine tenths, and probably even a larger proportion of those whom we examine for admission to our work, seem to suppose that telling what is done to get an answer, is giving an explanation." "I have come to feel it," he continues, "to be almost an utter waste of time, if not a trial of patience to be avoided, to examine students for admission upon this point. One of two things, it seems to me, needs to be done; either a better preparation in the matter to which I am referring should be brought by students seeking admission to the school, or we should have more time, especially with the students of our advanced professional courses, for instruction and drill on this point. The teachers we send out will certainly be found wanting in this particular, if something is not done in one or the other of these directions." Here we have this whole matter in a nutshell. These students had passed, as I understand it, an examination on the subject of arithmetic; an examination equivalent to what is demanded to finish arithmetic in our high schools; an examination in which they gave proofs of a knowledge sufficient to justify their taking up algebra, — a knowledge which, in many instances at least, was all that would be required at our best colleges, and yet a knowledge that was so hopelessly deficient for normal-school purposes that a considerable portion of the time had to be devoted to academic instruction. And what was true of arithmetic was equally true of algebra, as Prof. Bellows testifies; and I have no doubt that the same thing was true of every other branch of study pursued in the institution.

Now, one of two things must be done; either academic instruction must be given in the normal school, or our other schools must furnish this drill. I am thoroughly in favor of the first alternative. I believe thoroughly in normal training for teachers, but I protest against an attempt to change our public schools into normal schools. I protest against introducing into the intermediate and grammar grades of our schools that painful and detailed training which is proper — nay, necessary — to one who expects to become a teacher. The vast majority of our children leave school before they are fifteen years of age, and we ought to give them something more than the full and minute training in the elements of the three R's which it is right that teachers should have. The teacher should know *how* and *what* to teach, and in order to do that he must fully conquer the subject; but he need not try to teach the small boy everything that he himself knows about it. The teacher as a boy in school need know nothing more than his companions; but as a candidate for the teaching profession he must know a good deal more, and he must be drilled in a very different way. Now, the proper sort of instruction can be best given in a normal school. The method of teaching a teacher is not always nor often the best method of teaching the practical man or woman. It would be a criminal waste of time for our high schools to teach all their pupils as those of them ought to be taught who expect to become teachers. The proper attention to methods can be profitably given only in a normal school.

In connection with this point, we may notice a fact of great importance in normal-school work; viz., that a teacher will teach a subject as he has been taught it, and not as he has been told how to teach it. The student who comes to a normal school and takes merely the professional work in the narrower sense, who studies merely how to teach, will begin his active work as a teacher just as he learned it himself in the first place. If he acquired the knowledge he possesses in an old log school-house, with the very worst appliances and the poorest teacher and methods, he will begin his instruction just as his teacher began with him. His knowledge of methods and principles will be of vast advantage to him, for after he has come to see the defects in his work, as he probably will in course of time, it will aid him greatly in remedying them; but it is just the business of the normal school to show him these defects before he begins to teach, — to save the boys and girls from the ignorance and inefficiency of the teacher. The only way, or at least the shortest and most effective way, to break the power of the spell which those early associations and that first training exercise over the students, is to take them over that ground again, and carefully correct those early impressions, and train them to new modes of thought and new methods of work. A teacher who has been connected for several years with one of our largest normal schools told me recently that he had made a study of this very point, and that he was struck with the fact that all the normal students who on entering the school had passed examinations in the elementary branches, geography, grammar, arithmetic, and history, and had afterwards gone out to teach, had all done their poorest work in just those branches which they had neglected to take in the normal school, and in many cases their work was so poor that it was to be considered a failure, while their teaching of other branches was fair to good; a striking confirmation of the view that a teacher will teach as he has been taught, and not as he has been told how to teach. By the phrase "being told how to teach it," I refer to such directions as would be given in a course of lectures on the proper methods of teaching.

It may be objected to the above statement that inasmuch as the normal teacher would use methods adapted to adults, the normal pupils would not, after all, get the methods that they could use in their own teaching. That would be very true if the teacher should confine himself simply to an ordinary academic drill. But it is a very important part of his business to call the attention of his pupils constantly to the points in which they must deviate from his methods in their subsequent work. The point is that such directions would have a value only in connection with a vigorous academic drill.

Let us examine the course of instruction in the Prussian normal schools, with reference to the point under discussion. We take these schools because they are all formed after one model, and there, if anywhere in the world, they are able to have purely professional schools; there, if anywhere, they are able to demand at entrance an examination in all the subjects which we generally require for graduation.

I find, on examining the provisions of the law in reference to normal schools, published in October, 1872, by the Prussian Minister of Public Instruction, that they required for admission to the normal school an examination in all the studies afterwards pursued in the course, except theory and art, meaning by that what we included under our term "professional work."

They are examined in religion, language (grammar, rhetoric, criticism), mathematics (algebra, arithmetic, geometry), music, history (ancient and modern), natural sciences (physics, botany, zoölogy, chemistry, physiology), and gymnastics. Now, on comparing the work done in the normal school, we find that they begin at the very beginning in every branch. In German, for instance, they begin with the parts of speech, declension, comparison, conjugation, and follow the subject up through syntax, analysis, rhetoric, punctuation, and criticism. In history they begin with the Greeks, and end with Prussian history. They begin arithmetic, geography, and natural science, writing and drawing.

Now, what is their idea in giving instruction in the very elements of these elementary studies? It is not so much to give academic instruction, considered *as* academic instruction, but rather because they consider this careful study and review of all these elementary branches as a part and parcel of the strictly professional work, and as the shortest way of reaching thorough professional drill in all these various subjects. As if to dispel all doubt as to the purpose of this work, we find the minister telling us in the tenth section of the law, "The instruction which the normal pupils receive is expected to be in its form a model of that which they themselves as teachers will have later to impart. The directors have to insist strictly on correctness both in the presentation of the subject-matter on the part of the teacher, and in the oral and written reproduction of the same on the part of the pupil. The instructor is expected to present simultaneously with the subject-matter the method also." Here you see we have the key to the Prussian view of this whole subject. It is not academic instruction but professional work, and that is its justification.

Now, if Prussia, a country which perhaps better than any other could exact a high grade of preparation, a country nearly all of whose candidates for admission to normal schools have enjoyed normal-school training, in the sense at least that their teachers have been normal-trained men, — if such a country still deems it of great importance to afford academic instruction in its normal schools, if its theorists consider that its teachers should be taught arithmetic in a different way from that in which its ordinary scholars are taught, surely that affords an argument for the necessity of a similar course here, where our pupils are wretchedly prepared, and where they can in many cases not find good preparatory instruction at all.

In conclusion, let me summarize: What is the relation of academic to professional work? My answer is, It is vital and not merely incidental. Mere knowledge of a subject does not imply a power to teach it. Mere knowledge with some general instruction as to methods and principles, nay, even with particular instruction as to methods in individual branches, is not sufficient to place the student on that vantage ground which every normal-trained student should occupy. The instruction proper to the teacher cannot be found in our public schools at present, and ought not to be found in them in the future; it remains, then, for our normal schools to furnish it. Further, a teacher will teach as he has been taught; consequently the shortest method of attaining the best teaching in our schools is to give our teachers the best teaching. And I am inclined to think that if in any individual case it were necessary to let one or the other go, in general the professional work could be better spared than the academic. I believe that the student who goes out to his work with a thorough normal academic drill in the branches he expects to teach will do better work than one who, while deficient in these branches, has studied the theory of teaching. I claim, further, that he will not only do better work at first, but that he will be more likely to improve, — to attain to that knowledge of principles which will free him from the trammels of previous education and habit.

NOTES ON AN INFANT.

BY J. H. HOOSE.

[Dr. John M. Gregory indicates (EDUCATION, IV.) some of the provinces of research by those who expect to learn the facts upon which to construct a science of education. The following notes were made by Mr. F. H. Champneys, upon his own infant son, and extend from the moment of birth through a period of nine months (*Mind*, XXI.).]

Sucking. — The first thing the child did, when left alone a few minutes after birth, was to suck the blanket in which he was wrapped.

When hungry, he would cram his hands into his mouth with varying precision, and suck them hard. This was observed ever since birth, and seemed to be adopted without hesitation as a means for temporarily appeasing hunger.

At four days old he pushed away his mother's breast when satisfied.

The touch of a warm hand did not induce sucking movements.

No practice seemed to be required for directing the hands to the mouth.

Sneezing was always accompanied by violent movements of all the limbs, the thighs being flexed on the abdomen, the forearms bent, and the elbows thrust forward.

The purpose of the flexion of the thighs on the belly was probably partly to relieve the tension of the suddenly contracted abdominal muscles; but the movements of the arms (and partly those of the legs also) probably had for their cause the necessity for relief of what is called a nervous discharge of great amplitude, such as a sneeze.

Crying was performed at first without any squaring of the mouth. The sound can be exactly expressed by "uga," as pronounced in German. This must have been produced by closing the fauces by the contact of the pillars of the fauces and the soft palate, so as to send all the sound through the nose; the vowel sound being then produced by separating the soft palate and pillars of the fauces, and allowing the sound to come through the mouth.

The child appeared to cry at first for three reasons: (1) From a feeling of loneliness or fright on awakening from sleep, which was relieved by being taken in the mother's or nurse's arms, or even by a touch; (2) from hunger; (3) from pain. The cries seemed to be all different in character.

Smiling was reported at five and a half weeks, but not certainly observed before the end of the eighth week. It was often accompanied by sucking movements. This shows the association of two pleasurable ideas.

Weeping. — Tears were shed two days before the end of the fourteenth week.

Seeing. — The eyes were first fixed on a candle when a week old. On the same day the eyes were fixed on one of the parents for the first time.

Opening of the eyes was accompanied by wrinkling of the skin of the forehead; the wrinkles, being horizontal, were due to the frontalis muscle. They resembled those produced in adults during an effort to open the eyes when tightly closed, either on account of very dazzling light or of a foreign body in the eye; but were probably only necessitated by redundancy of skin, which is very observable in a young child, and most young animals. This wrinkling gradually ceased.

The ninth day was the first on which anything like habitual opening of the eyes occurred.

It was not before the fourteenth day that the child *took notice* of persons or moving objects.

From the time that he began to use his eyes, bright light gave him much pleasure, and he never blinked except on a change from comparative darkness to bright light; when the moment of this change was past he would gaze for a long time with much apparent delight, and with wide-open eyes, at a lamp or at the gas, however bright. This fact makes it unlikely that the frowning mentioned above was due to being dazzled. He was first able to see himself in the glass at eight weeks old, the experiment having been often used before.

Hearing. — During the first week the child would not start at any noise, however sudden, when unaccompanied by vibration of the room or bed. For instance, no notice was taken of hands loudly clapped close to his ear; but slamming of a door made him start. Just the same starting was observed immediately after birth, when the scale in which he was being weighed went down with a jerk.

It was very difficult to decide when the child really heard first. At fourteen days old he would turn his eyes to his mother when she spoke to him, but even then did not start at sudden noises, however loud, unless accompanied by jerks or vibrations; so that the apparent power of hearing his mother's voice may have depended on his feeling her breath on his face, for it was only when her face was turned towards him while she spoke that he turned his eyes toward her.

In connection with the late appearance of this sense, we must remember that the tympanum at birth is packed with areolar tissue, which only gradually becomes absorbed after birth.

Reflex Actions. — Among these may be noticed the spasmodic start which occurred on any jar or vibration, previously noticed, and also the fact that micturition was always or nearly always indicated by a slight shiver.

The slight provocation necessary for producing a convulsion in children is a well-known sign of their great irritability to nervous stimuli.

Exactly at four weeks old the child started at sudden noises if unexpected, but would not start twice at the same noise if not excessively loud.

Taste. — The child rejected all things given to him cold, even milk, but would take various things not especially nice (such as cod-liver oil) if warm. The temperature seemed to be of more consequence to him than the taste.

Voluntary Movements. — The arms were far more purposive in their movements than the legs, from the very first. The movements of the arms from the first were like those of striking with the fists; the fists, however, being only partially clinched.

Walking. — When one day less than nineteen weeks old, the trial was made of supporting the child on the floor with the feet just touching the ground, and moving him forward. The movements of the legs were always alternate and purposive, each step being perfectly formed; though the feet were lifted unnecessarily high, there was no hesitation nor irregularity. Only when he was lifted too high for one or other foot to touch the ground was this alternate movement interrupted, the foot which failed to reach the ground making a fresh step. It was obvious that the contact of one foot with the ground was the stimulus for moving forward the other foot.

Attempts at Talking. — From nine months the child distinctly imitated the intonation of the voice when any word or sentence was repeated in the same way several times.

About the thirteenth week he began to appear to attempt to join in conversation with a variety of articulate sounds, if talking was going on in the room.

Fear. — The first symptom of fear was noticed at about nine months. It was excited by an unusual sound in the room, but not in the child's immediate neighborhood; he opened his eyes very wide and burst out crying. The second occasion was at about ten months, when sound was again the exciting cause: a toy was given him which squeaked on pressure; he burst out crying, and cried whenever it was offered him, but in a short time he got used to it, became very fond of it, and made it squeak himself.

Remarks. — Records like the foregoing are valuable to biologists, and interesting to readers of all classes, yet they meet only partially the wants of students of educational science. Education is a product whose germs were planted in the souls of the original man and woman. Certain functions of mind and body are fundamental to the very existence of man, and belong to all men. Dispositions of mind, traits of character, forms of body, and tendencies generally, are superinduced upon these original functions, and unite with them to make up the thread and thrum of the fabric of human life; the texture of this fabric is colored variously by obstinate years, and strengthened or made weak by the lives of many generations. A child at its birth represents a sum of original functions, added to a sum of traits and accomplishments in embryo which have survived through its ancestral lines and have been implanted in it by its parents. These descending idiosyncrasies are so numerous that children of the same parents frequently inherit but few of them in common. The educator wishes to know more than the biological facts of life-force and growth of the child; he inquires concerning the extraordinary propulsive energies and procreative capacities of mind with which parentage has endowed it. These idiosyncrasies of a child constitute its personality, and reveal its ancestral families in their personalisms. Parents would perform a valuable work for pedagogical

science if they would record the first appearance and subsequent development of these inherited peculiarities, together with their relative degrees of activity and intensity, as these phenomena indicate and measure the persistence of these differentia.

Examples to illustrate the Remarks. — (1.) A daughter of the writer placed her hands beneath her head when sleeping, when she was but a few days old, quite after the manner of her father, from whom this habit descended to her. (2.) At an early age she manifested great pleasure and interest in peculiar and unusual vocal sounds, developing rapidly much skill and readiness in imitating them. This idiosyncrasy she inherited from her father, who received it from his mother, who possessed extraordinary aptness of voice in imitating tones of musical instruments. (3.) As soon as the child could hold a cup with any ease, she extended the little finger of the hand in which she held it, doing it in so peculiar a manner as to reveal unmistakably an inheritance through her mother, in whose family this idiocrasy is marked. (4.) At the age of twenty months the child could speak but few words plainly, compared to the number spoken by children of her age generally. There are no records to show from which parent this backwardness descended, or whether it is original with her.

The practical value of records of this nature would be great to those who are teaching children; the facts of personality would guide the invention of modes of imparting instruction. The writer returns to idiocrasy numbered (2) above, and refers to some circumstances connected with his school days. He possessed considerable flexibility of voice when a lad, and could pronounce words at sight; yet he read poorly, and with a voice whose natural suppleness and warmth were stiff and cold. Looked at from the interval of years, the boy did not carry the native spirit of his voice into reading; those who taught him to read did not show him that the sentient and emotional qualities of his voice were those which must be seized, trained, and preserved in habits, before he could interpret a period of a printed page in the schoolroom as well as he could express a sentence of his own creating when on the play-ground.

Finally, educators require data of the kind noted in the body of the above text, in order to construct a general science of education; and they must have data of the nature alluded to in the remarks following the notes, in order to enable teachers to impart instruction in those modes which shall produce the highest value of the science when applied in special practice. These data, being so diverse in differentiæ, must be voluminous, and subjected to the most rigid forms of examination, to discover the unities which they embody.

KANT AND HIS ENGLISH CRITICS. *

THE present year is the centennial anniversary of the publication of Kant's immortal work, the "Critique of Pure Reason." In honor of this event, celebrations have been inaugurated in Europe and America. There was one at Saratoga on the 6th of July, called together in response to the suggestion of Prof. J. W. Mears, of Hamilton College. The Concord School of Philosophy devoted the first week of August to lectures on Kant. Able professors presented able papers at both of these celebrations. Immanuel Kant was a genius so vast, comprehensive, and profound in philosophy, that such lights as Descartes, Spinoza, Lord Bacon, and even Leibnitz became pale when his star ascended the sky. Like Aristotle himself, "the father of all those who know science" (as Dante calls him), he has been the origin of widely different schools of philosophy. No system of thought since his time has retained any hold on the respect of thinkers unless it defined its relation to Kant's system, and fixed its location by Kantian latitude and longitude. Kant's "Critique of Pure Reason" has furnished the "equator" and the "first meridian" to everything in philosophy that has been written in this century worth the reading. Even at second hand, or fourth, eighth, or tenth hand, his powerful, critical mind has penetrated to inferior writers, and given them their "First Principles." Herbert Spencer's "Unknowable" is a statement of the Kantian critical position at fourth hand, seeming to come through Mansell or some other disciple of Sir William Hamilton, from the latter who found it in the Kantian original, but omitted to bring with it the wonderful doctrine of the "Antinomies," which would certainly have made strange havoc with Spencer's doctrine of "The Knowable," had he studied that doctrine.

Just at this time the press teems with new books on Kant. Many have appeared, and very many more are announced, privately and otherwise. Dr. Hutchison Stirling, of Edinburgh, who is said to know the great work of Kant by heart, and who wields the most powerful literary pen in the field of philosophy, is soon to publish a work on Kant, critical and expository. Every year it is becoming more and more the settled routine in our colleges to begin any thorough philosophic study with a discussion of the Kantian Critique. Especially in the realm of moral philosophy are the Kantian ideas zealously expounded. Ethical philosophy would have become extinct in this age had it not been for Kant. Kant has founded it on an adamantine rock.

The subsequent German philosophy rose on the Kantian basis: edifices as wonderful as the systems of Plato and Aristotle, Proclus and Plotinus;

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* Kant and his English Critics. By John Watson, LL. D. (Glasgow University), Professor of Philosophy in Queen's University, Kingston, Ontario. Glasgow University Press: Mackelhose. (New York: Messrs. MacMillan & Co.)

marvellous revelations of the nature of the thinking activity, and of the objective, substantial existence of mind as the principle of the world. The Greek movement in thought is the only other great philosophical movement, and it is an objective, ontological system. The German movement is psychological, and therefore fits the want of modern thought, which is subjective, sceptical, and scientific.

The work of Prof. Watson is destined to receive much attention from Kantian students. Its view is more favorable to the results of Kant than most books on the subject. Its author has written many very acute articles for the "Journal of Speculative Philosophy," and holds a position in the foremost rank of philosophical thinkers in our day. He is a man of great and growing insight, specially gifted in the comprehension and interpretation of this great psychological movement in philosophy inaugurated in Germany. In using this word "psychological" to designate the great German movement, we are not unmindful that the Scotch philosophy has been called "psychological" also. Without questioning its value in its sphere, we would suggest that it belongs chiefly to the department of "anthropology," or the science of the interaction of the soul and the body; because it deals chiefly with phenomena of that realm (the laws of association of ideas, the matters of immediate sense-perception, sleeping, dreaming, etc., etc.), and does not recognize any such thing as the observation of a mental activity as such. The "Dialectic" of the German philosophy has its significance in this work of seizing activities and forms of mind. Kant, it is true, was of Scotch descent, but his thinking is thoroughly Teutonic. With the Scotch "common-sense," we never rise to an idea of thinking activity unconditioned in sense-perception, and hence to knowledge of the possibility of a divine mind, — such as St. Anselm, St. Augustine, St. Thomas Aquinas conceived. And yet the Scotch philosophy has had a great function to perform in the development of the Protestant movement in religious thought, although chiefly of a negative character. Judging by the movement of the Scotch mind to day, that wonderfully tenacious and alert intellect is to change its basis to the German starting-point and retain its strong hold on thinking minds. It seems that Prof. Watson is a graduate of the University of Glasgow.

It is difficult, in a short notice, to give an adequate view of the varied contents of this work. With a statement of the whole of the positive side of Kant's "Critique of Pure Reason," and a general account of the results of the "Dialectic," the author interweaves a criticism of what he regards as the misapprehensions of Mr. A. J. Balfour, Mr. Henry Sidgwick, and Dr. Hutchison Stirling, together with an examination of the main position of English Empiricism as represented by Herbert Spencer and the late Mr. George H. Lewes. To all this he adds a sympathetic criticism of the "Critique" itself, intended to show wherein Kant has failed to free himself from the benumbing influence of his dogmatic predecessors.

The first chapter, besides containing a criticism of Mr. Balfour's objection to the "Transcendental Method," gives a statement of the main aim of the "Critique," and of the method followed by Kant in the construction of his philosophy. The marks which distinguish criticism from dogmatism are stated, and the revolution accomplished by Kant is shown to lie in his transcendence of the Sensationalism of Locke, as developed to its issues in scepticism by Hume, and of the dogmatism of Wolff and others.

In the second chapter, an exposition is given of Kant's views of Time and Space. This is based mainly upon the "Prolegomena" and the "Transcendental Æsthetic" of Kant. It illustrates the "critical" as distinguished from the "dogmatic" conception of knowledge. An examination is here made of Mr. Sidgwick's objection against Kant, that he has two different ways of meeting the charge of Idealism, one being followed in his "Prolegomena," and the other in his "Refutation of Idealism," inserted in the second edition of his "Critique of Pure Reason." Prof. Watson here contends that Kant has only one way of refuting Idealism, and that the differences which Prof. Sidgwick finds are only superficial.

The third chapter deals with the "Transcendental Analytic," which is the central part of Kant's theory of knowledge; he seeks to show that in it Kant has carried further the transformation of ordinary conceptions, — this transformation which he had begun in the "Transcendental Æsthetic." The relation of the categories to the various classes of judgment, to the "Deduction of the Categories," and to the "Schematism," are explained by Prof. Watson.

In the next chapter, after a short statement of Kant's view of the relations of metaphysics and psychology, a full examination of the "Psychology" and "Psychogeny" of Mr. Lewes is made, — in which the author shows that the doctrine of Evolution, as applied by recent Empiricists, has no bearing upon Kant's problem, and that a confused conception of what that problem really was is responsible for the supposition that it has such a bearing. It is further shown that the doctrine of Lewes, that the physical organism is the only subject of knowledge, and his view that the rise of knowledge can be explained by the facts of biology, rest upon uncritical assumptions, confusions of thought, and ambiguous language.

Chapter fifth gives a statement of the meaning of the Principles of Judgment, and examines generally the view taken by Dr. Stirling of the distinction of the "Mathematical" and "Dynamical" categories and principles.

Prof. Watson next goes on to give a statement of Kant's proofs of those principles, and devotes a good deal of space to the explanation of the principles of Substance and Causality. In view of the recent controversy on this subject, our author goes over carefully each step of the Kantian proof, in order to prepare us for the following chapter, in which he undertakes an examination of Dr. Stirling's position in regard to Kant's doctrine of Substance and Causality, and, as well, of Mr. Balfour's position in that regard. Prof. Watson interprets the Kantian doctrine differently, and attributes their objections to the interpretations which they have severally given to the

Kantian exposition. He regards his own view as the only correct interpretation.

The eighth chapter contains a summary of Kant's "Metaphysic of Nature," dealing with the conceptions of matter, motion, and force, and by far the fullest presentation of this work of Kant to be found in the English tongue. After this he devotes a chapter to Spencer's doctrines on Matter and Force in his "First Principles," and finds therein many unjustified assumptions and much inconsistency.

Chapter tenth contrasts Spencer's "Unknowable" with Kant's "Noumenon," showing in detail how superficial is the resemblance between them; and in particular, that while the "Thing-in-itself" of Kant is a hypothetical conception, the "Great Reality" of Mr. Spencer is dogmatically asserted to exist, while yet it is declared, inconsistently, to be "unknowable." It is also shown that the transfigured Realism of Mr. Spencer is an incoherent theory, and that its incoherence is not superficial but radical. He shows also how Mr. Spencer, in his account of the "Substance of Mind," falls into the paralogisms detected by Kant in all dogmatic psychologies; and that when he (Mr. Spencer) attempts to show that human reason falls into "alternative impossibilities of thought" when it attempts to comprehend the absolute, he has stumbled upon Kant's "Antinomies of Pure Reason," without seeing, as Kant did, how they may be solved.

The last two chapters are devoted to an extended examination of Kant's own theory of knowledge. In the first of these, the abstract opposition of the *a priori* and *a posteriori* elements of knowledge, and of sense as receptive and thought as originative, the want of logical development in the system of categories, and the contrast of pure and mixed categories, — all these are held to indicate a certain imperfection in Kant's way of looking at things, which must be avoided in a true theory. The book concludes with an examination of Kant's view of the different elements combining to produce knowledge, — sensation, the pure forms of space and time, the categories, the schemata, and the "pure I,"— the gist of which is to show that while the main result of the "Critique" on its positive side is to bring into prominence the central truth that knowledge is a synthesis of subject and object, intelligence and nature, Kant has sometimes allowed himself to be confused by psychological distinctions that are either inadequate or belong purely to psychology.

WM. T. HARRIS.

THE NATIONAL COUNCIL OF EDUCATION.

THE National Council of Education was organized at the annual meeting of the National Educational Association in 1880, held at Chautauqua, for the purpose of aiding the work of that Association by furnishing maturely considered conclusions in regard to important questions arising in the province of education. It was necessary to form a deliberative body composed of the representative teachers and educators in the nation; and this was accomplished by a provision that the five departments of the National Association should elect, each, three members, and the Association as a whole twelve members more, giving twenty-seven members elected by the National Educational Association. These twenty-seven elect twenty-four associates, and thus fifty-one members are provided for, — the entire membership of the Council. The term of service in the Council is six years. Doubtless there are as good men in the National Educational Association outside of the Council as inside it; but the twenty-seven elected members are its chosen representatives. It may be supposed that the twenty-four members elected by the twenty-seven are selected with even greater care from the list of prominent educators in the nation. It is true, and will remain true, that outside of the National Association will be found a far greater number of able men engaged in teaching than within it; nevertheless, there is no feasible method of securing from these a selection of representatives who will act in a council. The organization of the Council as it is may therefore seem the only practical one.

At the late session of the National Educational Association in Atlanta, the Council held its first annual meeting for work. A preliminary meeting had been called to consider the reports of the committees, and a fair attendance had been secured on Lookout Mountain, just previous to the Atlanta meeting. A number of reports were in readiness, treating very important subjects. It was clear enough that the Council must settle many questions in advance, regarding the forms of its own work, before reaching any results that would do to submit to the National Educational Association. There were the questions in regard to the form in which the conclusions of the Council should be presented; in regard to the amount of responsibility assumed by the entire body for the views contained in the reports adopted by it; and chiefly there was the question of formulating views which all could indorse as true. While the meeting at Atlanta did not complete anything which could be reported as its verdict to the National Association, yet exceedingly important preliminary work was undertaken and accomplished. It was seen what advantages a small body of regular members has over a large body of constantly varying membership. There could be animated debates carried on, and genuine progress made towards a common conviction on the question under debate. This, it was evident, was the most valuable work of the Council, — to digest its opinions, offered as solutions to the educational questions of the day. The free debate, carried on with as little formality as a conversation, made such modification possible, and each one could correct the partialness of his own insight through the views presented by his fellow-members. Those who attended the meetings of the Council came away with the conviction that the new organization would be of very great value to the cause of education, not only in aiding the Association, but especially in the way of maturing the views of the members of the Council. Many had been sceptical on the subject, and had supposed the Council of doubtful utility. Now it was seen by all that such a compact body for hand-to-hand debate has great possibilities for usefulness.

It is conceded that the mere statement of results reached by the Council will be of less value to the educational intellects of the country than a discussion of the grounds for the conclusions reached. It is better to produce conviction through a thorough study of the subject, than to furnish an oracular dictum to be quoted as authority by the average teacher. But even authority has great practical use for the working masses of mankind. It is better that teachers shall adopt correct views without a full comprehension of them, than wrong views with any amount of deep reasoning at the back of them.

Within the past ten years there has been a succession of attacks on the school system of the country, initiated by men of first-class ability, and sustained by the press of the nation. No doubt the people and the press are unwavering in their support of the adopted school system; but the attention given to these attacks indicates on the part of the public a widespread demand for a better understanding of the grounds of its support of the schools than is given by a mere blind following of tradition, which uses fine names and calls the public-school system the safety of the Republic, the defence against anarchy, etc.

Here is a field of work for the Council, — a field of indefinite size, — for investigation and conclusion and formulation and expounding of grounds and reasons. If the Council shall furnish only negative impulse to educational thought, and arouse great opposition on the part of educators jealous of their right to formulate their own conclusions, yet this very circumstance will be a great boon to the profession. The choice of subjects will remain with the Council, and the opponents will simply furnish volunteers to the cause of clearing up and formulating results in the most important matters of education.

Whatever, therefore, may have been the outlook for the Council at its first appearance, its future is now assured. It remains only to secure more frequent meetings, and to hold these meetings when they will not interfere with those of the National Association. Perhaps it will be found advantageous to hold sectional meetings, — portions of the Council meeting at convenient places, central to the members attending, and holding their round-table sessions to discuss the questions propounded for solution.

THE CONCORD SCHOOL OF PHILOSOPHY.

After three sessions in as many years, this unique academy has reached a form in which it seems to interest the public deeply, and to be performing its own proper work with good effect. Of course it is not yet fully understood by the newspaper correspondents who write about it, and who indulge in much nonsense or fine writing, or both, concerning it, — now puffing this lecturer, now scoffing at that, and displaying, to those who really attend the school and comprehend its results, their own superficial acquaintance with it. One or two of these correspondents, who assume to be oracles in regard to it, though staying away from most of the lectures they have reported, have made themselves ridiculous and brought the school into some little contempt by their airs and revelations. The best way to find out what has been done at Concord since Mr. Alcott opened the school in 1879, is of course to go there and see while the lectures are going on. Another way, not so good, but the only one available to most persons, is to read the reports of the lectures and conversations, which this year have been fuller than ever before. The least instructive way is to read the inferences and guesses of newspaper men who drop in once a week and stay an hour, or who sit at a distance and construct out of their inner consciousness a theory of what the Concord School has been, is now, and is going to be. Vennor's weather predictions have about the same practical value that such writing possesses.

The school seems to have been from the first very modest in its aim and method; not puffing itself and seeking to create a sensation, but going to work steadily and with a definite plan to *teach* something. It has never been so successful in realizing this purpose as during the late session; never so much like a *school*, and so little like those show lectures and sermons in which ambitious mediocrity advertises itself nowadays, and which have given many persons a prejudice against the Concord exercises, supposing them to be of the same sort. But such lectures are quietly excluded from the list, or if accidentally they appear once, are silently dropped. The list is carefully made up year by year, not from lecturers who itch to say something, but from those who seem to have something to say which the school ought to hear; not for the sake of making converts to Hegel's logic, or citizens of Plato's republic, or one-sided disciples of any sect or man, but in order to form some image of philosophy in the mind, and some purpose towards "plain living and high thinking" in the soul. For both objects, literature is indispensable; and therefore the inseparable conjunction of metaphysical and literary instruction, not only in the Concord School, but in all the great philosophic periods of history.

We do not understand that there is any purpose on the part of the managers of the school to give up its literary features; but on the contrary, to give its philosophy a higher literary form, as has manifestly been done since the first session in 1879. Indeed, the most marked effect yet produced by

the school has been the change wrought on the style of its principal teachers. Dr. Harris is less German, Mr. Alcott less vague, Dr. Jones less extemporaneous than at first; while the lecturers who do not strictly regard the philosophic form of utterance will be found to have approached it more nearly from year to year.

A special feature at Concord this year has been the attention paid to Kant, in consequence of the anniversary of his first appearance as a world-instructor in philosophy. Up to 1781, Kant had been a narrow professor, like so many in our modern universities; from that date he takes rank as the maker of an epoch. In celebrating this epoch, the Concord School did not, as some of its shallow critics imagine, commit itself more unreservedly than before to the gerund-grinding form of metaphysics; it simply paid due respect to a great thinker by setting his work in the broad light that competent students of various opinions and habits of thought could shed upon it. The publication of the Kant Papers, by Dr. Harris, in his "Journal of Speculative Philosophy," will give an example, the best yet afforded in print, of what the Concord School can do, — but an example of its activity only on one side.

The great merit of that singular combination of camp-meeting and university is, to our mind, that it unites in one corps of instruction, one conference of enthusiasts, the independent opinions and the consentaneous spirit of three or four different schools of philosophic thought. *E pluribus unum* could be its legend, not less than that of the nation in which it sprang up, and whose best purpose it so well illustrates that the many defects in its apparatus and achievement thus far can well be overlooked. To force this natural unity — this *concordia discors* — into a hard and fast didactic system would have some apparent advantages, especially for narrow minds; but it would destroy the main object for which, as we read it, the school exists. Therefore, as its favorite poet says, let

"The young lambs bound
As to the tabor's sound"

in the ever-youthful utterances of Mr. Alcott; let the Platonic and Aristotelian "cataracts blow their trumpets from the steep" of Dr. Jones's and Dr. Harris's philosophy; and let (occasionally) "the winds come to us from the fields of sleep" as we contemplate "subject-objectivity" in Kant and Hegel. The observant spectator will say, as Wordsworth did,

"Ye blessed creatures, I have heard the call
Ye to each other make; I see
The heavens laugh with you in your jubilee."

The year in which a spiritual philosophy, earnestly taught and generously held, makes such a "dent" in the practical American mind as Concord has now made, must be regarded by us, at least, as an acceptable year of the Lord.

A CRISIS IN AMERICAN HISTORY.

THE statement is brief: Hon. James A. Garfield was inducted into the office of President of the United States of America, March 4, 1881. The Senate of the United States was convened in extraordinary session soon thereafter, to transact such business as the President should place before it. Among the names nominated for public office by Mr. Garfield was that of Hon. William H. Robertson, of the State of New York, to be collector of the port of New York. One of the United States senators of that State, Hon. Roscoe Conkling, was opposed to the confirmation of Mr. Robertson by the Senate, because the latter gentleman represented ideas which are directly opposed to those which are embodied in the public career of the former. Failing to insure the rejection of the nomination by the Senate, after a long struggle, Mr. Conkling suddenly resigned his position in Congress, May 16, taking with him his colleague, Senator Thomas C. Platt. The ex-senators immediately appealed in person to the Legislature of the State of New York, then in session, to be re-elected to the positions which they had just abdicated. The real ground of this appeal consisted of opposition to the theory of the administration of the government of the United States as it was illustrated by the action taken by the President. A bitter struggle ensued in the Legislature, which was terminated July 23, by the complete overthrow of Mr. Conkling and the ideas which he advocated.

This date, July 23, 1881, will ever be memorable in the annals of the political history of the United States as noting a crisis in American history. A hasty review will present the case. President Jackson may be fairly credited with having given an animated existence to the system of patronage which has grown to so great proportions in the politics of the country. The system exemplifies its motto, "To the victors belong the spoils." The system rewards personal partisanship and punishes manly independence of opinion and expression of sentiments; it is not content to reward friends, but it must revenge itself upon opponents; it subverts the merits of a cause to the demands of a demagogue; it forbids any voice to a minority, other than that which is dictated to it by the majority; it introduces the theory of the "unit rule" into conventions; it conducts "snap caucuses"; it "packs" caucuses; it claims that every man has his price at the polls, and decrees the price for which he must sell his vote or suffer political ostracism; it tends to exalt public offices above other places of honorable labor; it tends to demoralize the estimated sacredness of suffrage; it is at war with the very genius of American liberty, — the vigilance, intelligence, and integrity of the citizen, and his devotion to the public weal; it claims for United States senators, as individuals, the prerogatives of the Senate itself, and those of the President of the United States.

The year 1861 witnessed the beginning of the Confederate war, upon which the administration of the government of the United States became at

once military in spirit, which is but another name for centralization. Under the necessities of the hour the people accepted the despotism of circumstances. General Grant ultimately became the personification of the government; he left the field, and a grateful people placed him two terms in the White House. Bred to a military life, he assumed the duties of the civilian with the bias of his training; he saw the individual too often where he should have seen the cause. Hon. Roscoe Conkling, a civilian, who best represented the system of patronage, became the favorite of President Grant; patronage increased the power of its representatives until they appeared to scorn the theory of personal rights except those which were mortgaged to the "machine." President Hayes was bred a civilian, and was opposed to the centralization which patronage had developed during the previous years; Mr. Conkling became an enemy to his administration. In 1880 the theory of the "unit rule" was disavowed by the national convention which met at Chicago; this action was a sore disaster to the disciples of patronage as led by Mr. Conkling, who saw in this reverse the downfall of the theory which he had so ably championed. General Grant was not nominated for his third term, and General Garfield, a civilian, was placed before the people as standard-bearer. March 4, 1881, he was made President. The idea of patronage was embodied in Mr. Conkling, that of individual liberty in the President. Mr. Garfield nominated Judge Robertson to be collector at New York, a man who represents in its fullest measure the idea of manly independence and abilities which sustain American institutions. Mr. Conkling began to war with the administration as he had done under Mr. Hayes; it was the conflict of patronage with personal liberty. Five long months the contest waged; the theory of patronage was exemplified in its legitimate outcome by the bullet of the assassin as it sped to the life of the President. Mr. Conkling was defeated July 23; the President still lives; patronage has met in deadly strife with the people, and civilian ideas have conquered. Political slavery has succumbed to personal liberty, in the first direct issue which they have ever had in the history of the United States. The crisis has been safely passed. The teacher of history will have a sacred duty to discharge in the future in defining the limits of patronage in the administration of our government.

MISCELLANEOUS NOTES.

ALTHOUGH Dean Stanley has finished his course upon earth, yet his works will remain long among the living. Of his labors with the pen, no one work will be cherished more by educators than his history of the life of Dr. Thomas Arnold, of Rugby. In this labor of love the noble-hearted Dean erected a monument to a man whose memory is dear to every teacher; the volume is a tribute which perpetuates the honor of him who conceived and executed it, as well as that of the illustrious dead whom it commemorates.

Gen. James A. Garfield, President of the United States of America, was shot at 10 o'clock A. M., July 2, while he was in the railway depot at Washington. An office-seeker, named Charles J. Guiteau, who had been disappointed in his efforts to secure an appointment at the hands of the administration, deliberately attempted to assassinate the chief magistrate. The President survives the attack. All nations have been prompt and sincere in expressing abhorrence at this endeavor to strike down in cold blood the representative of a great nation. Acts like this cause one to pause and reflect upon the dangers which threaten republican forms of government. An editorial elsewhere discusses the case as it is related to the political history of the country.

Mrs. Garfield, wife of the President, has come prominently before the world since her husband was assaulted. Her heroic courage, her cheerful bearing when in the presence of the patient, her hopeful spirit amid all the discouragements of the symptoms, her dignified and womanly conduct towards the public, have been themes for universal remark and commendation. Mrs. Garfield has exhibited the spirit and form of an American home. Her home is but one among countless numbers in the United States which are characterized by similar traits of wifehood, motherhood, and womanhood. These homes constitute the glory of America and the strength of the Republic. Educators may feel justly proud of these products of their labors.

The American Institute of Instruction, the oldest of our American educational associations, held its fifty-first annual meeting at St. Albans, Vt., July 5, 6, 7, 8. President Mowry and his official associates had made excellent arrangements for a very large, as well as a very instructive meeting; and among the expected speakers was President Garfield. The assassination of the President on the previous Saturday so shocked the public mind that plans for summer pleasures or improvement were temporarily suspended, and a cloud was cast over all the purposes of our teachers. Notwithstanding this fact, a very large membership met at St. Albans, numbering eight hundred or more; while at the open-air meeting on the Park, Friday, nearly two thousand persons assembled to listen to educational addresses and to consider the lessons of the hour. The literary exercises of the Institute were of the highest order, and some parts were of exceptional excellence, while the attendance on the meetings from first to last was well sustained. As a whole, it was one of the very best meetings of this able body of educators

The National Educational Association, with its several departments, and the National Council of Education, met at Atlanta, Ga., July 20, 21, 22, and 23. President Smart, of Indiana, planned and executed its proceedings in a praiseworthy manner. The attendance, as was expected, was largely from the Gulf States, with about forty representatives of the Northern belt; the extreme hot weather, at the North as well as at the South, hindering a large number from attendance. The papers were able, and in most cases the writers took advanced views of educational progress. The discussions, as usual, brought the conservative and progressive advocates into strong antagonisms. The great gain expected to flow from this meeting will come from the union of the educators of all parts of the country in the sections where the Association now held its first meeting. Great unity and brotherly feeling were manifest, and all the lessons and influences of the meeting point towards a strong and united policy in educational affairs in all of the American States. The educators of the North were enabled to see to some degree the great efforts which the Southern people are now making in the direction of good free schools, and were also able to understand some of the great difficulties which have attended the work hitherto and still encompass it. On the other hand, the educators of the South were made acquainted with leading Northern educators, with whose work they will in the future heartily co-operate. The election of State Superintendent Orr as the president of the Association was a compliment to the hospitalities of the South and to the earnest spirit of her educators. The next annual meeting of the Association will probably be held at Saratoga, N. Y.

THE action of the Chinese government in recalling the educational mission which it had established at Hartford, Conn., is indicative of conservatism that Americans can hardly appreciate. Especially is this true when it is recollected that an American university has a chair of Chinese Language and Literature, which is occupied by a native of the Celestial Empire. The ostensible ground for the action of the Chinese authorities is that the youth were becoming too much Americanized in their customs and habits. It is quite probable that the Chinese educational missions in Europe will be continued. While deprecating the removal of the youth, yet the ideas which intelligent Chinese have seized in America will continue to expand in the Empire of the East. Theories, institutions, and mechanical inventions which are peculiar to America can afford to bide their time; they are destined to have a place sooner or later among all the nations which have organized forms of government. We predict that but few years will pass before the government of China will free itself from the conservatism which the destruction of the Hartford mission indicates. A just and liberal policy pursued by the government of the United States towards China would restore confidence rapidly towards us among that people.

THE subject of over-education is being now agitated in Canada and the United States; and in the discussions held thereon, we observe that the system of "cramming," so common in most of our schools, comes in for a fair share of comment and condemnation. At the formal opening of the model schools in connection with the normal school, recently held at Ottawa, Dr. Hodgins, the Deputy Minister of Education for Ontario, said it was most important in a school professing to be a *model* school for other schools, that this question should be duly considered. Medical men had frequently called public attention to the evil effects of "cramming," or overwork of the brain. He thought that the difficulties arising from cramming might be obviated by the teacher devoting sufficient time to explaining the next day's lesson and instructing pupils how to proceed. This suggestion is a wise one. The great difficulty which pupils experience is, how the work is to be done; a great deal of time is lost in simply trying to find out the way to proceed. In New York, Mr. Richard Grant White, the well-known philologist, has been giving his opinion in the New York "Times," in which he speaks most strongly on the subject. He says, "The system, instead of benefiting boys and girls, fails to train young people for the duties and business of life. It rather makes them bumptious and impertinent, and gives them a smattering of knowledge which, in its practical results, is worse than no knowledge at all."

AT a meeting of the Leeds (Eng.) Board of Education, the subject of having penny savings banks in connection with the schools (under the direction of the Board) was discussed. It was stated that in France and Belgium, the establishment of savings banks in schools had largely contributed to the habits of thrift which are characteristic of these people. The idea of school savings banks originated in France in 1834, and there are now in that country 1,026 of these institutions, with 213,135 depositors; the amount deposited being 4,246,613 francs, or about $849,322. Similar banks were established in other foreign countries: in England in 1837; Italy in 1834; Saxe-Weimar, Würtemberg, in 1846; Prussia and Switzerland, 1851; Hungary, 1860; and Belgium, 1866. School-teachers keep the bank-books of the pupils as long as they attend school. No pupil can withdraw the whole or part of a deposit without the consent of parents or guardian.

ENGLISH school-boys' holidays are exceedingly long. If they are not unnecessarily so, on health grounds, no objection can be raised; but this is being questioned in many quarters. Says the London (Eng.) "Globe": "The entire change involved in the return home for the holidays is no doubt beneficial in many ways, but it is not so necessary as with older folks, and it is far more complete. It is far too complete as a rule, and not unfrequently undoes in six weeks what it has been the aim and object of four or five months of training and discipline to achieve, in the way of the formation of character and habits."

THE new code recently introduced by Earl Spencer and Mr. Mundella into England makes several changes which, though referring to matters of detail, are of vital importance. They refer mainly to compulsory education, and our readers may get an idea of the stringency of the law in regard to this question in England from the following summary of the provisions recently introduced: Compulsory by-laws everywhere; employers to be prosecuted for employing any child who ought to be at school; by-laws to be paramount; out-door pauper children to be subject only to the same law of attendance as other children; employment certificates made identical with by-law exemptions up to thirteen years of age.

THE Chautauqua Teachers' Retreat has been very successful this year. A larger number of teachers has attended than ever before, and the interest in the exercises has been greater.

Lessons and lectures have been given on geography, English literature, vocal music, clay modelling, drawing, elocution, gymnastics, kindergarten methods of instruction, psychology, and pedagogy.

The instructors of the Retreat were Secretary Dickinson, of Massachusetts; Prof. S. T. Frost, of Massachusetts; Dr. John Kraus and Mrs. Maria Kraus-Boelte, of New York; Prof. Nathan Shepard, of New York; Prof. MacClintock, of Johns Hopkins University; Prof. L. W. Osborn, Adelphi Academy, Brooklyn, N. Y.; Edward A. Spring, sculptor, Perth Amboy, N. J.; Prof. T. F. Seward, Orange, N. J.; Prof. S. S. Curry, of Boston University; and Prof. Frank Beard, of Syracuse University. It was reported that there were one hundred and fifty-three teachers in the Retreat, representing twenty-two States and Canada.

Next year there will be added to the course of instruction, rhetoric, and exercises designed to teach the true method of teaching the different branches of natural history. Skilful teachers will be employed, and no pains or expense will be spared to make the Teachers' Retreat a success. Especial attention will be given to methods of teaching founded on the philosophy of the mind, and illustrated by school exercises. The museum and teachers' library, both lately established at Chautauqua, will furnish the instructors and members of the Retreat with abundant means of teaching and study.

Chautauqua offers rare advantages to teachers throughout the country for a quiet study, during the resting period of the year, of the principles of teaching, as well as the best method of their practical application. The teachers of the country, during the school year, are constantly pouring out their accumulated knowledge before the hungry pupils. They need to devote a portion of every year to replenishing their exhausted intellectual possessions. But they need rest as well as new knowledge. If, therefore, some way can be contrived by which both can be gained at the same time and by the same processes, the problem of "How shall the summer vacation be spent?" is solved. Dr. Vincent, the able president of the Chautauqua Teachers' Retreat, has solved it. On the banks of one of the most beautiful lakes in the world, he has established an institution in which rest and work are so combined that an accumulation of physical and spiritual strength is the sure result of the union. It is expected that next year the Chautauqua Retreat will number a thousand members.

The Social Science Association is now making, through its educational department, investigation into the physical and mental development of infants. In connection with the discussion of this subject, the following letter of Prof. Darwin, of England, will be read with interest: —

Down, Beckenham, Kent,
Railway Station, Orpington, S. E. R.,
July 19, 1881.

Dear Madam, — In response to your wish, I have much pleasure in expressing the interest which I feel in your proposed investigation on the mental and bodily development of infants. Very little is at present accurately known on this subject, and I believe that isolated observations will add but little to our knowledge; whereas tabulated results from a very large number of observations, systematically made, would probably throw much light on the sequence and period of development of the several faculties.

This knowledge would probably give a foundation for some improvement in our education of young children, and would show us whether the same system ought to be followed in all cases.

I will venture to specify a few points of inquiry which, as it seems to me, possess some scientific interest. For instance, does the education of the parents influence the mental powers of their children at any age, either at a very early or somewhat more advanced stage? This could perhaps be learned by school masters or mistresses, if a large number of children were first classed according to age and their mental attainments, and afterwards in accordance with the education of their parents, as far as this could be discovered.

As observation is one of the earliest faculties developed in young children, and as this power would probably be exercised in an equal degree by the children of educated and uneducated persons, it seems not impossible that any transmitted effect from education could be displayed only at a somewhat advanced age. It would be desirable to test statistically in a similar manner the truth of the often-repeated statement that colored children at first learn as quickly as white children, but that they afterwards fall off in progress. If it could be proved that education acts not only on the individual, but by transmission on the race, this would be a great encouragement to all working on this all-important subject.

It is well known that children sometimes exhibit at a very early age strong special tastes, for which no cause can be assigned, although occasionally they may be accounted for by reversion to the taste or occupation of some progenitor; and it would be interesting to learn how far such early tastes are persistent, and influence the future career of the individual. In some instances such tastes die away without apparently leaving any after effect; but it would be desirable to know how far this is commonly the case, as we should then know whether it were important to direct, as far as this is possible, the early tastes of our children. It may be more beneficial that a child should follow energetically some pursuit, of however trifling a nature, and thus acquire perseverance, than that he should be turned from it, because of no future advantage to him. I will mention one other small point of inquiry in relation to very young children, which may possibly prove important with respect to the origin of language; but it could be investigated only by persons possessing an accurate musical ear: Children, even before they can articulate, express some of their feelings and desires by noises uttered in different notes. For instance, they make an interrogative noise, and others of assent and dissent in different tones; and it would, I think, be worth while to ascertain whether there is any uniformity in different children in the pitch of their voices under various frames of mind.

I fear that this letter can be of no use to you, but it will serve to show my sympathy and good wishes in your researches.

I beg leave to remain, dear madam, yours faithfully,

CHARLES DARWIN.

To MRS. EMILY TALBOT.

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EDUCATION.

No. II.—November, 1881.

WHAT MAY BE FAIRLY EXPECTED OF THE AMERICAN COMMON SCHOOL.

A PRIZE ESSAY.

FIRST PREMIUM FROM THE BICKNELL FUND.

BY GEO. T. PACKARD, BRUNSWICK, ME.

The signal officer at Washington maps out the weather probabilities by noting the aspect of the whole country. In his mind's eye he sees the areas of storm and sunshine distributed with impartial care throughout the land, —whole sections bathed in sunshine, whole sections dark with vapory masses; nevertheless, by averaging the returns from every prominent point, the weather prophet is able to declare that the outlook is favorable, — the local disturbances being but slightly contradictory of the general tendency to clear, ripening days. The clear shining of the sun has the supremacy, though clouds and storm dispute it in numerous localities.

Our subject constrains us to look beyond New England, — which, apart from circumscribed disturbances, presents a highly auspicious condition in its educational affairs, — and to include in our inspection, regions where the common school fares hardly; and furthermore, to mark communities which will have no dealings with the system which is possessing the land and blessing the inhabitants thereof. This general survey in its entireness is favorable in its issue, albeit there are many distracting sights and sounds; and the American common school, in its largest sense, is seen to be capable of a service to the country which cannot be measured by the finest judgment, so great are its possibilities.

The phrasing of the question under discussion happily places the forecasting we would attempt on the simplest and most reasonable basis. A fair expectation touching the work of a typical institution, — that, in brief, is the limit appointed to this paper.

It may be well to remark that the expectation of the people in general, the common judgment concerning the common school, is in issue, not the searching and difficult reasoning of minds bent on minute discriminations between slight degrees of excellence. What ought the plain citizen to expect? that is the inquiry; not what may be the demands of specialists in theories of instruction.

The governmental idea unto which we are born includes in its broad meaning the development of the individual in the direction of intelligent citizenship. By so much as a single inhabitant comes short of an appreciative participation in the determination of the personality and potency of authority, local and general, by so much does the system fail to do its designed work. That which is perfect will have come when the humblest voter indicates his choice, not only freely, but with a reason to give every man for the ballot he has deposited. Republicanism (not party, but governmental), with its varied ministries, is laboring to bring the individual to share in governing with independent and intelligent desires. The common school is one of these instrumentalities. Its aim agrees with the main purpose of our national system. Its mission is to produce the honest and reasoning citizen, clean-handed, clear-minded. With the development of each child so grounded in morality and intelligence, a new foundation stone is laid, and the country has an additional guaranty for its preservation. The citizen is not his own, politically. The larger duty is to the commonwealth, to the nation.

The common school is not ordained to prepare individuals, primarily, to buy and sell and get gain, to appear properly in reputable society, to be free from the shame of ignorance. The reason of its being lies deeper: it is to perpetuate and purify citizenship. What may be fairly expected of the American common school in the way of fitting boys and girls for membership in the municipal and national organization? Let us try to answer that practical and momentous inquiry.

That which has been is that which shall be. The common school will continue to teach, indirectly often, but surely, the things that belong to our individual and national liberty. Not that constitutional problems and the abstractions of a philosophy of freedom are to be set before the immature understanding; but none the less is there to be a distinct enforcement of the idea that our belongings as Americans include a restrained yet practically unfettered liberty. Liberty, too, which costs something, is to be represented as the inheritance and the trust of those who seek the care and culture of our free schools.

The common school is not a gratuity. The child receives this impression; the elders go on to derive important conclusions from this premise. Taxation is a vague but familiar process to the child, who knows that those responsible for him are laid under contribution for his education. He is free to go to school. He has the right to demand the advantages ordained for his age and intelligence. The liberty is unquestioned; but behind the teacher is the parent with his reserved powers, and behind the father is the tax-gatherer. A system of checks and balances, based upon appropriations equally obtained from the well-to-do and the impoverished, — such is the common school. Common benefit procured at the common cost, — that conception of the plan of our educational work is an early acquirement of our boys and girls. The very existence of the common school substantiates the claim of those who favor our form of government. We are not friendly to license, to the removal of boundaries, to an indiscriminate sharing in public advantages with no offer of an equivalent therefor. It is liberty "protected by law," it is privilege guarded by provisions for its proper expression, it is advantage founded upon the contribution of certain fair and moderate returns, that we champion, and for which some have dared to die!

An element of the common freedom is this offer of privilege through the medium of the common school. The same free air is breathed whether one be standing in the presence of the jury box — which is the exemplification of independence — or before a class whose members represent all grades in society, each free to come and go, preparing to serve those who have opened the way for their entrance upon a rudimental education. In the very dew of his early childhood, — before we can credit it, not infrequently, — the boy has apprehended the truth that obligation and obedience are conditions of the proper relation between parent and child. Very early, then, may the idea of liberty, that costs something, be made clear to the understanding. The primary school may be the birthplace of the consciousness that a very choice kind of freedom is that which we are to cherish and insure to others. As in a mirror, the child may behold the larger liberty of the country pictured in the common school, with its wholesome order, its reasonable requirements, its connection with sacrifice sometimes, and always with cost.

It may fairly be expected, then, that the American common school will impart to those who are within its jurisdiction an appreciation of the fact that legitimate freedom is the portion at once of the scholar and the mature citizen; the love of liberty and the love of letters being joint expressions of the effect of our educational processes, — affections joined together, because it is for the good of the individual, and of the greater personality, the nation, that they be not put asunder.

A lesson easily learned by the pupil of the common school concerns the relation between members of the class, and the whole body of those studying in a particular school as well. Equality is a second principle which is inculcated by the conditions of being of our school system. The serene eye of the law rests with impartial kindness upon the children whose parents dwell apart in social and cultured ways. No certificate of high birth and gentle breeding does the law ask. The invitation is as cordial to those whose exterior almost belies decency as to those apparelled in fine linen. Like the equality of the nation, that of the school is legal, not social; but so easy is the thought of the right lost in the embarrassment attending the denial of the social privilege, that the common school is bound to present, with constant and hearty vigor, the truth that no accessories of wealth ought to make possible undue regard to the rich child as against the wants of the poor. The common school would be laying violent hands on itself were it to forget the necessity laid upon it to testify, in season and out of season, to the vital principle of lawful equality. From the school door the children take their several ways; no power inheres in the system to change the social facts of the case: but as heretofore, so without cessation are we to anticipate the witnessing of the common school to the beneficent fact that within school walls the dividing lines are erased, and that degrees of refinement can make no distinction in the amount of watch and care vouchsafed the waiting children.

The common school belongs to a system; it is not merely a member of a series of expedients for the well-being of our communities. The school-houses stretching from coast to coast are related; organizations separate, the abiding principle identical, substantially, making all akin. There is an implied setting forth of the spirit of fraternity, as well as of liberty and equality, in the ordering of our scheme for diffusing intelligence. The scholar, though the process be not plainly recognized, learns to appreciate the circumstance that his own contemporaries, the country through, are busily at work in the same sphere receiving much indirect instruction, not less than the appointed measure of information laid down in the books. If he be burdened with what he deems unneeded degrees of restraint, he can console himself with the thought that a great multitude are undergoing a similar discipline. There is need that due emphasis be placed upon the importance of rearing children in this atmosphere of sympathy and fraternity, that they may grow into the brotherly feeling which is uniting their elders in their governmental relations. The centrifugal forces are so marked in our country, that it were well to cultivate speedily in a child's mind the sentiment of kinship to childhood in all the land. A union of schools may typify the fuller joining together that makes the nation sympathetic and vigorous.

It is not to be denied that the three principles indicated are to be instilled gradually. Unquestionably, an average child would respond unsatisfactorily to the inquiry, "What have you learned at school about the philosophy of our educational system?" Nevertheless, the seed is sown. The induction which the mature understanding makes is initiated years before. There is a simplicity of statement possible that may declare these fundamental truths with precision and clearness: —

The common school not a haphazard blessing, but related to expenditure, and imposed taxes, and sacrifice of high or low degree, — that proposition may be made distinct and appreciable; the child may well be taught that.

The common school as a leveller, refusing to regard social distinctions, securing equal rights, — that portraiture of the system may be outlined plainly; the child may recognize it unmistakably.

The common school as a preacher of the doctrine of fraternity, — that we are members one of another, children and adults alike, — in that light young eyes may behold the strength and beauty of the American scheme of education. Race, color, belongings, let them be what they may! childhood may claim what it will receive, the first principles of learning, whether that childhood blossom under sunny skies and be arrayed as the lily of the field, or wear a sombre garb and be acquainted with the blight and chill of want, from whence beauty has departed. There is the brain to be trained, the heart to be touched; no matter, then, what the outward and visible signs may be.

If what has been said has seemed vague or somewhat overwrought, sentiment being in the ascendant, we now come to what is, beyond dispute, in the plane of the practical. What may be fairly expected in the way of direct teaching?

The grade of schools with which we have to do is presumed to instruct in the fundamentals of an ordinary education. Decent, decorous English; a handwriting free from the illiteracy that besets us before and behind; a reasonable acquirement of mathematical skill up to a certain point; a little acquaintance with geography and history; a mild partaking of literature, through the instrumentality of books used for reading exercise, or of occasional remarks of instructors, — this is a summary of the main points considered by our children in the primary and grammar schools. Ours would be a meagre theme were it to extend not beyond the boundaries just now mentioned. We are authorized and impelled to consider the larger subject of teaching, which cuts loose from the text of the book, and deals with principles. Not in bondage to the letter, but loyal to the spirit, — that is the qualification for the teacher, the characteristic of the scholar, in the class-room which is ideal, it may be, but to be more and more a reality. Not, What do you know? but, What do you want to know? is the test inquiry. The common school fails if it frees a pupil from its control, and hears no sigh of regret that he knows so little.

Well is it for the child to bear this yoke of discontent in his youth. Dissatisfaction, that with widening views of things there is an enlarging of the boundaries of what is to be apprehended by the scholar, will be tasted by the maturer student; and his disappointment will be less keen if from the first he have been taught to expect that knowing will always suggest the unknown, and acquirement hint at the unattained. It is a pitiable condition when a boy, leaving the lower grade of schools, turns away with relief from the sources of information, conscious of no void to be filled; and great is the responsibility of the teacher if so be he has failed to inspire any strong desire for learning, and to persuade, so far as in him lies, the young scholar that he must not anticipate satisfaction, — his portion being at best but partial content with his proficiency.

The regulation of the heart is a legitimate part of the process we call education. The natural desire for a Protector, a longing based upon the feeling of dependence, — a Protector "without whom nothing is strong, nothing is holy," — which we believe to be a common experience with those with whom our school system has to do, is to be recognized by the teacher, who has no right to shut his eyes against the needs, high or low, which are a part of the moral "assets" of the scholar. The home influences which impel a child to realize more and more his relation to his Maker are to be re-enforced by the direct and indirect influence of the teacher; while those bereft of home training that has God within its thought, and purposes to lead the child to him, must be specially helped to an understanding of the relation of children to the Almighty Father.

The delicate question of the relation of the instruction in school to the inculcation of principles of morality and natural religion, to say nothing of revealed religion, must not, therefore, be passed in silence. Between the conception of a purely theological basis for the common school, and a proposed foundation which excludes Bible, prayer, and allusions to the soul's alliance with its Maker, there lies for the average citizen the middle ground of opinion, which is a standing-place for those favoring a reasonable degree of religious teaching, the clear enunciation of morality, and devotional exercises which are not the expression of doctrine so much as a setting forth of the feeling of dependence on God, and the need of asking for his aid. The immutable distinction between right and wrong, — where is greater reason for the declaration of it than among the young characters who are to taste and are tasting of the bitterness of wrong-doing, and the content of minds conscious of rectitude? It would be a narrow and perverted view that would oppose the simple ethical instruction which the child will find of lasting advantage.

There is a practical association of defect in common morality and error in thought. A dishonest liver is a dishonest thinker, when we make the last analysis. Evasion, deceit, unfairness in other directions, invariably affect the understanding. An intellect trained to cheat will be false when the mind would deal fairly with itself.

Feelings which are wayward and used to indulgence in untoward regards will betray their owner in unexpected moments.

A will made captive by a wrong spirit in other matters will be a poor reliance even in purely intellectual pursuits.

A whole man, morally speaking, alone can trust himself in reasoning, judging, comparing, — in a word, in any of the mental exercises that work out problems in any department of learning. This is a species of self-predestination, — the only predestination we mortals had best think much about (that is the practical form for us); and the teacher may safely prophesy concerning any pupil whose character is unsound, that at some point the child, lacking in moral principle, will be intellectually a victim to his want of personal worthiness. It is, then, a needed admonition for children to hear, and from the teacher's lips in the class-room, that the truest scholarship is joined to the highest principle. This moral teaching we are to expect from the common school. It is not so much that children are to be warned that when they are grown, immoral practices will prevent success in business or in a profession; but more, they are to be assured that now they will be sufferers, and in the line of their studies, if they are addicted to bad thoughts and doings.

By the phrase used, "a reasonable degree of religious teaching," is meant, that the boys and girls are to learn from the lips of the teacher what they hear elsewhere, that they are children of the Most High, who sees, rewards, punishes, but above all loves them. A theological system is not here advocated; we simply mean that, often indirectly, the child ought to gather in the school-room the elemental expressions of the common faith of those who support the schools of the land, who are ready to acknowledge at least this much: God made us, helps us to help ourselves, and holds us responsible for what we are and what we do.

In these unobtrusive propositions, which need excite no strife, there is suggested a desirable amount of religious instruction.

With tact the teacher may make it plain, and to the detriment and displeasure of none, that the common school is not set up in a pagan atmosphere, and that the Creator is there recognized, who preserves to us the integrity of our thinking powers, and is himself the truth that students pursue, in that he is the author of whatever is. There need be no formal constituting of the common school as an "annex" to the church; nevertheless, the tone and temper of the instruction may be modified by the reasonable admission of teaching concerning the ultimate relations of the soul to its Maker.

As there is no provision for the pursuit of mental and moral philosophical studies in the common school, so there is no examination in that department when applicants present themselves and ask to be intrusted with the charge of children in the public institutions. But there is need that those who would assume that responsibility should be, in a reasonable measure, familiar with the main facts about the mind's structure, that they may look somewhat into the mental mechanism of the pupil, and analyze the relative strength of the intellect, the feelings, and the will. Furthermore, it were well if teachers, in a simple manner, without pretence and without partiality, could classify the pupils on a philosophical basis.

Thus would the discipline of the school proceed in a more orderly and effective way. The child whose feelings are quick — easily moved, easily subsiding — will be somewhat of a trial in the ordinary methods that such temperaments pursue; there will be exhibitions of anger, soon over, and there will be a disturbing expression of the love of fun, unmalicious, but unsettling the quiet of the class-room. The character, when understood by the teacher (in the course of his classifying of the school), will be found one not difficult to mould. Patience, tact, ingenuity in adjusting penalty that there be no injustice, and careful watching will be required; but all that is easier than to deal with the scholar whose will is woven of steel, as it were, and who is not easily moved from his purpose, whether that purpose be good or bad. Such a scholar as this, pre-eminently determined, furnishes a problem that demands thorough study. If directed aright, that vigorous and untiring will can be made the instrument of abounding good, and will superintend work that draws into its accomplishment the best skill and energies. Nevertheless, the teacher remembers that such an inexorable character is capable of doing vast mischief, and may overturn the discipline of a school if not met with equal determination. A little knowledge of the mind, of the force of motives, and of the necessity that persistence must meet persistence, will enable the instructor to deliberately lay out the plan of subjugation, and relentlessly to pursue it till the strong one finds that a stronger than he is to be master once for all. The dealing with the few extremely bright pupils, with the mass of average intellects, and with the unpleasantly numerous class of uninteresting minds, will tax the teacher's strength and will, and his judgment as well. To withstand the brilliant scholars, that they move not with perilous swiftness toward the goal; to stimulate the moderately endowed that they may quicken their pace; to spur the dull plodders who linger and love to dwell at every resting-point, — this work necessitates the possession by the teacher of the discrimination that is the result of some study and reflection as well as a matter of experience. The coming discipline will be founded more than it now is upon the basis of insight into the mental structure of the scholars, and the corresponding adaptation of means to the end. Character reading, in a proper sense, is an important equipment for the teacher. The judge trains himself to study faces, and to form opinions speedily in that way of probable guilt or innocence: not that this expedient is always a success, but largely is it an assistance to the magistrate. He likewise looks for character indications during the trial, and is helped to decide as to the merits of the case as given in the evidence, supplemented by this personal bearing of the accused.

It would revolutionize the work of some teachers were they to administer discipline in a discriminating way, as knowing those to whom they adjudge certain penalties. They do not know their scholars, — that is the verdict concerning many whose acquaintance with books is undisputed. In making allowance for peculiarities of temperament, for bodily infirmities too, there is need of precise and kindly methods. There is a scale of offences before the mind's eye of every head of a school; but do not some emphasize minor faults so impressively that there is nothing to add when a serious breach of the peace occurs? Discipline which is always severe — we all have witnessed such governing — is never efficient. When they hung people for breaking a twig in a hedge, as invading the sanctity of an English home, it seemed a terrible missing of the ends of punishment since the murderer met with no severer fate. The "twig" style of discipline is to be seen in many school-rooms to-day; in the "good time coming" it will have shared the fate of its counterpart in our Old Home. So wise, so tender, so firm will be the government thereof as years go on, that the American common school is destined to set an example in this regard. But this excellence will not be of chance; it will be the fruit of mental discipline on the part of the teachers. The common school is to identify for the child, if we may so say, the impressions which its educational environment suggests: it is to make plain to the pupil's consciousness certain facts and experiences. The boy does not pause to examine and re-examine himself; he does little towards a philosophical insight of what he is in his mental life: the school is therefore to help him to "come to himself." A child on his entrance to school life is struck with the sameness, the routine side, of the days in the study-room. The writer questioned a child six years old, at the end of the second day of her first term in school. "I don't think much of education," was the reply: "they have no good times; have to sit still, and do the same thing over and over." Immature testimony this, but suggestive of the uneventful tenor of ordinary school life. The notion of routine was before the child's mind,—of course not defined, but it needed assistance in identifying the thought and impression. It was easy to say that all life would be much like that; as a rule, there must be a steady and unromantic following of duties, and much drudgery.

Another fact must be made clear to the child: the teacher is to aid him in apprehending the matter of obedience *en masse*, of collective subordination, as supplementing the obedience of the individual. The boy has been used to personal subjection to the parental will, and it may be has seen the few who constitute his family heeding the requests and commands of father and mother; but the sight of a roomful of children attentive to one injunction — obeying in chorus, as it were — is a novel experience. The teacher can make the young pupil appreciate the larger obedience of the community, State, nation; membership in organizations is thus suggested to the child's mind. The dangers and responsibilities of intense individualism as opposed to the feeling of oneness with numbers, with a whole people, may be set forth plainly and explicitly. The fullest possible education is thus helped forward. The necessary friction of living is also impressed, by the teacher's help, at an early stage of experience, upon the sons and daughters who enter our schools. The petty trials of the room; the needed adjustment of one's likes and dislikes to the prejudices of others; the collisions and pacifications of youthful associates; the clashing of rivals for place and rank in the class; the fancied slights and injustice of teachers towards scholars, — these and manifold other experiences are quickly thrust into the life, and the child begins to imagine that it is a hard and vexatious thing to "live, move, and have a being." At this point the instructor may be of lasting benefit. He leads the child to consider the truth that adults are children of a larger growth; that the sensitiveness of the school-fellow will be duplicated by that of the mature associate; that all his days he is to be allied to men and women whose interests will not always coincide with his own, and that there is a healthful and useful side to what seems wholly disagreeable. The discipline coming from regard for the rights of others, and the watch and care that alone make one an agreeable and bearable member of society, are not to be counted as among the ills of life. This practical proposition may be placed before the scholar, and will assist in tempering the quality of his complaints at the annoyances of living.

Nor can there be too much emphasis laid by the teacher upon the legitimate part of the inevitable exhibition of rivalry which school life beholds. Emulation, on its wholesome, virtuous side, is to be commended. Naturally does the desire to be superior spring up; speedily does it manifest itself; and the child is to be rescued from the peril of cultivating the evil and bitter side of the feeling and its expression. Philosophy, administered so skilfully and quietly as to be recognized by few, may be utilized in this way. The child may know himself, in part at least, and be broadened thereby in his mental and moral life. Our common educational system must be comprehensive. If the main trunk be made up of the fundamentals of English and mathematics, the branches spread on either hand, and these side growths are of vast moment. It would be a pitiful issue were the child to depart from the teacher's care able to define ordinary words, spell fairly, reputably exercise his mind in problems of arithmetic, but when questioned, found at a loss to answer concerning the simplest philosophy of living, — ignorant of the feeling of belonging not to himself, of the sharing in common benefits and trials, of preparation to live with some wide views of what man owes to self, neighbor, state, country, and to his God. So many pages of grammar, arithmetic, geography: yes, but what else have you learned? how much do you know of yourself? what has your teacher done to draw you apart from routine study, and enliven your way with prospects of your own inner life, of national life, of your relations to the life to come?

The physician explains the significance of symptoms. He illumines the patient's consciousness. He impels him to complete inferences. He introduces him to himself. The teacher, if he but stop to inquire, will find the child on the alert to know the meaning of his immature fancies, judgments, half-knowledge, and to sift his experience. How grand the opportunity for the teacher to lighten the darkness, to clear away perplexities, to direct the young toward the plane of self-knowledge, whither they would come!

The sanitary instruction, explicit and implied, which the school of to-day ought to afford, is more and more to be expected as one of the fruits of the system. From rooms laden with vile odors, or sickeningly wanting in the slightest facilities for ventilation; from homes where cleanliness is scarcely a consideration, and the plainest precepts touching the way of preserving health are little noted, nor suffered to deter the inmates from indulging in the traditional habits of the family,—from sources like these come a considerable percentage, when the entire school population is considered, of those who are to be taught the delights of learning and the decencies of life. No child has been reared so carefully as to be above receiving hints for a better way of living, in a sanitary point of view; while the sons and daughters of poverty are to be enlightened. The clean hands, as well as the pure heart, are to be set before them as worthy of being possessed to a degree not altogether unequal. The sound mind in the sound body must be supplemented by the clean mind in the clean body.

It may seem an ungracious suggestion, but occasional lapses from personal neatness in dress and in other regards on the part of teachers impel a reference to the matter, and the writer would take the liberty to say, with great plainness of speech, that a good example in the things that concern the particularity desirable in the outward appearance must be set by the teacher. Negligence in attire may well be accepted as evidence of carelessness about other elements of tidiness; the absence of a button may testify to the presence of disorderliness in other directions. The family physician who would retain his constituency is scrupulous in his attention to his person: we may permit a falling short in skill, but who can endure the uncleanliness, and offensiveness even, which is not absolutely unknown in what is called the better grade of society? An immaculate hand must be laid on the pulse, or we are disagreeably impressed; an unspotted attire must vest the acceptable physician.

We may deny to many of the medical profession godliness, when an average is taken, but we must ascribe to them cleanliness, a virtue not far distant from the former. The teacher has equal reason to be a pattern in respect to the outward man. That unpardonable offence against good breeding, the lack of due regard to the person and dress, must not be laid at his door. The scholars must be rebuked for their failings in this particular by the entire aspect of the instructor. Soundness in apparel from head to foot, and that he is clean every whit, — such are the signs and tokens of the acceptable teacher, whose brain by its fineness could never atone for any coarseness in speech or gesture or garb or treatment of the body; nor does he wish for any such seeming equivalent. An unkempt, shabby, unclean man in the teacher's office ought to be deemed a disgrace, a stigma upon the profession; yet each one who reads this paper may be able to name at least a single instructor of this ill-ordered sort. He may be a genius in the laboratory; but if so be he be a stranger to the lavatory, he ought to receive no further commission to teach. Dulness is better than dirt; as between these evils, the choice is obvious.

In example, the teacher is to be watchful and conscientious in these important regards; so likewise are his counsel and instruction to be faithful and continuous as he warns the children against the negligence of precautions which are designed to ward off disease. Temperature, the degree of moisture, the presence of odors from the heating apparatus, — in a word, the whole aspect of the school-room as the health officer would view it, — these points must not escape the vigilance of the instructor. The connection between a poor recitation and a closed ventilator is intimate. An inspection every fifteen minutes would not be practicable, and yet it is possible for the teacher to secure such a measure of purity to the atmosphere of the room as to make such a possible examination satisfactory.

Parents would be loath to breathe the air that fills the lungs of their children in many a school-room. The dreadful offence of whispering receives its due chastisement; but the culprit may have come to school with no pretence to being clean, and his person be a positive infliction upon those sitting near him, the air meanwhile being infected with the very sensible odors that arise from such neglected bodies, and yet not a syllable of rebuke proceed out of the mouth of the teacher. There has been a waking up to the dangers of poor ventilation and its accessories: this generation is the cleanest that has lived; the next will be yet more free from sanitary sins of omission and commission. The common school is to bear its part in the contest against the open and secret assaults of divers diseases. It will be in haste to rid itself of the responsibility attending the large mortality of children. It will offer them a refuge from odors that are fruitful in maladies. It will proffer pure air in exchange for the unventilated reccsses of what the wretched children call home. The teacher will theorize fully, and practise fully, concerning the needs and methods of healthful living.

The common school as a unifying agency, furthering the assimilation of the population of foreign extraction, — that "mixed multitude," — presents a profoundly interesting aspect. The grave problem is nearer a solution as the mingling of the children of native and alien origin in the school-room becomes more general. In the West, and in Eastern cities, the American child may be seated often amid strange surroundings which speak of the cosmopolitan character of our population. English, German, Irish, French, Scotch nationalities are blended in the assembly of scholars, and other countries contribute their speech and facial peculiarities to the scene, which could be only a reality in America. The thoughtful citizen, as he watches the incoming of the representatives of other civilizations, dwellers in uttermost parts or in more familiar regions, is afraid of the issue. He dreads the approach of those who have no acquaintance, and of course little sympathy, with the details of our system of citizenship. What is to control this host? When our fifty millions have increased to one hundred millions, what is to harmonize and consolidate the varied population, many of whom come from lands utterly opposed to the theory and practice of our government? The ceaseless column pouring through the gates of our seaports and on to the West, to be lost to sight, almost, in the solitary places of the Territories, is almost a menace to the Republic, say not a few in their surmising and prophesying concerning the years to come. The abstractions of political economy or of governmental dogmas, — what care these aliens for such things? Habit, usage, time, — these must do their work, and facilitate the progress of these new citizens — citizens only in name in large degree — towards an understanding and appreciation of the constitutional principles that control us. The first generation of these emigrants little apprehend what our people mean by sacrifice for the country's sake; their children, however, take hold somewhat of the idea of equality as interpreted by our customs and political creed, while their children in turn advance yet further and more freely, and are citizens in spirit and in understanding also.

The hope is with the children. The school is an important ally in making them one in hope and heart with those born within our borders and of ancestry joined from the beginning with the goodly fellowship of the founders of the nation. The boys and girls, in whose veins run the life currents of widely differing peoples, meet in one place, hear one language, are obedient to one law, are taught one theory of government, and look onward to one citizenship. The oneness, not the diversity, is impressed upon them. The influences of the school are centripetal. The children learn that while, in their wisdom, the fathers decreed that a foreign-born citizen might not be the chief ruler of the United States, yet that all other gifts in the discretion of the people are within reach of those of alien blood. They are to assist in governing by bearing rule or by electing those who so lead, and hence are early constrained to feel that their interests are to be enlisted in the cause of the Republic. Distinctions of race are to be forgotten when practically they are no barrier to a share in the law making and law executing of the land. The common school, in discharging its duty, will early and clearly indicate to the pupils this fact, which is the "pillar and ground" of our political faith.

As a rule, the parents of these children, whose ancestors were from over the sea, will do nothing to impart sound political instruction: they know little, care little, save that they had best vote in a certain way. On the teacher, therefore, devolves a great responsibility. Party questions divide the community; they are not to be obtruded: but governmental theories are a legitimate theme. Though the child be under fifteen, yet he may be partaker in the common faith of our Republic; he may gather the simple outlines of our governmental purposes; he may hold fast to the main proposition, that control by the people and for the people is the chief thing to be preserved. There is little excuse for the instructor, if the child who is ready to pass from the higher grades of free schools is not able to give in a few words the proper statement of the difference between our system and that of absolute or limited monarchies. The idea of the nation, for which there have been struggle and shock and strong crying and tears, ought to be the possession of every child who has reached years of discretion. The young, whose way to the school-room is from homes where the Old World life is most thought of and talked of, should hear within the jurisdiction of our teachers plain and strong testimony to the value and significance of a people's rule. It is to be expected, it may reasonably be demanded, that the American common school will be loyal to this need.

There is no reason to doubt that the growing tendency to study the aspects of nature will continue, and that the physical sciences will receive increased attention in time to come. As the higher institutions devote a longer period to this branch, the interest will be reflected; and it is easy to see that the elements of natural science — without text-book, very possibly, and in a plain way — will constitute a part of the order of study for very young scholars. It is safe to say that many a scholar in the public schools would be sorely puzzled to answer the question as to the composition of material entering into the construction of the building where he passes six hours each day. The glass through which he looks, — can he tell you of what it is made? He hears the bell, — too often, he would say, — but can he explain what sound is? The iron that is used in strengthening the structure, — has he a definite idea how it appears when taken from the earth, or can he detail the process whereby it reaches its present state? The air he breathes, — would it be a slight task for him to analyze it, in words at least, and measure it? The facts of natural science — not the speculations thereof — are to be more familiar to the next generation; and even the lowest grade of schools will share in the information, which year by year grows more complete, touching the foundations of the earth, the strength of the hills, the waters, the winds, the ore beneath our feet, the planet that swings in space.

There is need of an early familiarity with the first principles of science, that there be no danger in maturer years of being overborne by the weight of scientific assertion. To the novice, the multitudinous discoveries, the forces uncovered in the universe, long imprisoned as some of them have been, the certainty of experiments as contrasted with the variableness of opinion, the slow march of ideas spiritual, and the rapid coursing of facts of a physical character, seem to threaten the stability of all other departments of learning, where so much is left among the things we may not know. The claims for infallibility occasionally put forth by men who investigate scientific matters are often allowed by the inexperienced, who are awed by the splendid results; but more intimate acquaintance with the issues of research, the frequent seeing of experiments which come short of success absolute, and the knowledge that omniscience is not yet vouchsafed mortals, will save one from too much alacrity in admitting the unreasonable professions of scientists — if such be made — that while other men are trying to make facts sustain their views of truth, they are simply endeavoring to ascertain facts, caring little whither the inferences from those facts may bear them. Impartiality, honest thinking, and readiness to yield prejudice to the persuasions of reason, are not the sole possession of a small portion of the race. Long acquaintance with the general results of science will help to place false claims in their proper light. The child cannot, then, be taught too early the beginnings of science; for thus will he appreciate more fully its grand offices, and judge more exactly its claims, in after years.

The permanence of the teacher's office is a desideratum greatly to be longed for. That the exercise of the instructor's powers, not as a makeshift, but a professional undertaking to continue through one's days, is to be a feature more distinct in our system, it is reasonable to predict. Other things being equal, the seeker for employment in the school whence our children and their children will derive their primary education, not less than the would-be head of a higher order of schools, will be inquired of and selected, first of all because he intends to teach for ten months in the year, as he has done heretofore. In other words, teaching is his occupation, not a bit of financial strategy whereby he will obtain, for labor which is irksome and partakes of none of his devotion, a certain amount of required funds to pay debts or to provide for debts to be incurred. He who chooses a calling with a view to continuance therein, who has no other source of livelihood, whose distinction, if it ever come, must come from exertions put forth in fulfilling that selected vocation, will be apt to do more than discharge perfunctorily a round of duties. There is little occasion to discuss the relative advantage of regularity of instruction, or the varying impressions gained from studying under numerous teachers. The child who enters upon the first stage of instruction in charge of a given teacher, and knows no other authority or manner of teaching in that grade, then being passed on to the care of a second principal, who in turn will superintend the child's nurture, and commit him to the guardianship of a third instructor, — the primary, intermediate, and grammar epochs witnessing the efforts of but three teachers, — is certain to fare better, extraordinaries excepted, than he who has had dealings with a number of teachers wellnigh equal to the terms of the several years.

It is quite reasonable to declare that parents and citizens generally should encourage the adoption, by those qualified to do so, of teaching as a profession. The temporary teacher, who keeps one lesson ahead of the class, who counts the hours in school as a burden, who administers discipline so as to give himself the least inconvenience, is abroad in the land. We all have known him. He will thrive at the expense of the community so long as extempore performances in instruction are preferred to the steady and conscientious endeavors of those who teach as a vocation. Civil service in educational departments may well find its advocates. The patient continuance in well-doing in less prominent and important positions should earn a good degree, and the reward be given in the form of timely promotion. The master of a high school who began on the lowest plane, with the alphabet, and has worked his way up (unless there be remarkable natural gifts and an intuitive adapting of self to circumstances to form an exception to the rule), will surpass all others in teaching and discipline. He will be specific, minute, in instruction, and he will never be in a panic when crises of disorder arise, unless the experience with which we have been familiar be altogether peculiar to ourselves. Removal only for cause; promotion except for cause; permanence and plentiful success as a consequence, — may we not hope for this? The common school is a forerunner of better systems, and directly, or by intimations easily understood, it is to be declaring that what is perfect has not yet come. The children fare better than did the fathers, but there is no occasion to fancy that the educational millennium has dawned. Subject to correction, open to suggestion, reaching after the things that are before, claiming no infallibility, discontented with what it is doing, hopeful of larger success, — such is the proper attitude of the common school. As with all increase of knowledge there comes a fuller sense of incompleteness in mental results, so with the school; the more desirable its equipment and the greater its sphere, the more marked will be the evident regret of those who are the directing spirits that the defects are distinctly recognizable. Humbleness of mind goes hand in hand with exaltation of the best type.

One who looks back twenty-five years to the country school that was favored with his presence as a pupil is impressed with the astonishing improvements made in the material and intellectual surroundings of the child of to-day. The *quasi* antiquarian remembers the seats, with severely straight lines, suggestive of penance and mortification of the flesh; the cramped position taken by the student in the narrow-gauge desks; the careful provision against open windows, whereby fresh air might mitigate the rather oppressive atmosphere; the rote system of teaching; the scrupulous following of what was laid down in the books, no original problems being given by the teacher lest the scholars be confused; the fast-falling ruler which always sought the hand of the unjust, and sometimes by mischance gave the just a taste of retribution undeserved; the impression, suffered to remain, that the school had reached its best estate, and that the teacher could not err intellectually; the feeling that the important part of education was to stand precisely on the line in recitation, never to whisper, and to be sure to repeat the exact words of the book, principles being impertinent apart from their use in the printed page before the scholar, — these are faint outlines of the vivid picture in views when retrospection includes school days a quarter of a century ago in rural communities.

Twenty-five years hence, if there have been no striking changes in the arrangement of class-rooms, if chairs and desks are much of the present pattern, and the best methods in vogue now for ventilating be used after the twentieth century has begun, there yet will be a marked transformation, it must be believed, in the plans for teaching: the instructor doing no less thinking, but the scholar doing more. Whatever tends to constrain the child to form independent opinions will be welcome above its present acceptance, albeit we are witnesses of a great advance in this regard since the days when we were young. We may remember our discomfiture in being assigned geometrical problems the letters and lines of which had been changed by the teacher (who was in search of the possible adaptation of principles more than desirous to strengthen the memory), because we had confounded very different matters, — the repetition of sentences with precision, and the drinking in of reasons for certain mathematical results. The worship of the text-book is dying out; the instructor who cannot face a class unless he be armed with the treatise is outliving his opportunity. The next generation will demand more of extempore teaching, so to say, and welcome the coming instructor, who will be no slave to the letter.

The educational achievements of the common school will continue to furnish a theme for occasional orators, for rhapsody-loving dealers in verse, for the politician's smooth address to half-believing auditors. These indiscriminate and favorable comments do not signify. But there is to be, we doubt not, a wider familiarity of parents with what is done and left undone in the institutions that are making or marring their children. It matters comparatively little, in one point of view, whether professional educators and those who talk about schools with the assured air of experts be contented with the development of our system of instruction. The main inquiry is, What do those who contribute of their substance for its support, and commit their children to the care of the school, think of its practical workings? The average strong sense of the people must be satisfied, or that which is the very life of the system — the co-operating sympathy of the community — will be taken away. The common school is for the people: not for theorists, however able; not for officials; not for the sustenance of men and women who earn a living in this way rather than in some other, caring little save for pay-days and holidays, sorry to begin, glad to leave off, — but for the people! The end of its being must be kept steadily in view, or the American common school will have seen its best days. But I am persuaded better things of it. It will provide for the community's needs, not merely be responsive to its desires; keeping in advance, yet in sight always; taking the middle course between dead conservatism and unreasonable liberalism!

HOW FAR DOES AMERICAN EDUCATION SATISFY THE NEEDS OF AMERICAN LIFE?

BY MRS. JULIA WARD HOWE.

I MUST, at the outset, ask what I, a child and a learner still, can teach to those who are critical experts in the facts and methods of education.

I remember, at this moment, that I was invited last year to speak before the School of Philosophy in Concord. Those who gave this invitation prayed that I would not entertain them with any efforts in the direction of formal metaphysics, but that I would communicate to them, as far as possible, simple and strict views of modern society, as it would appear to one who, in observing it, should desire to apprehend the characteristics of human nature. It occurs to me that you, in like manner, may wish that I give you impressions which bear upon education, rather than suggest devices for its improvement.

Of the importance of education it cannot be necessary for me to speak in this place. Yet a sense of this importance sometimes so overcomes me that I must cry aloud, in order to relieve my fear and my sorrow, — sorrow for the great points so often overlooked in the past, fear lest they may be as badly neglected in the future. When we see whole generations trained to deeds of cruelty, to practices of superstition, to lives of selfishness and covetousness which are as barbarous as either, we can only pray that the power and patience of true teaching may be multiplied. We must pray that generations to come, which will be born equally helpless, and will follow each other with the same rapidity, may be so trained as to show the noble and happy side of human nature, and to attain the stature of the perfect man.

Parents and teachers are the guardians of society. They hold in trust its moral and intellectual life. There are piteous moments in which some frightful crime, some more frightful wave of social demoralization, causes both to be appealed to and held responsible for individual shortcomings which are public misfortunes. "How have you educated the children?" asks society of the teachers. "How have you bred them?" ask the teachers of the parents. Thus the fiery ball of blame is thrown from one hand to another. Perhaps at last it falls to the ground.

With the best of breeding and education, man remains a creature of accidents and of contradictions. Yet no one will deny that righ training has power to overcome unfortunate inclinations, nor that the best education brings with it the best morality.

Types of character are an important study in view of the great task which is set before us, the education of the human race. All human beings are much alike in some respects. They differ widely in others. Each individual has also some trait peculiar to himself, some original virtue or original sin which rivets him in his own place in the revolving social sphere.

To profit at once by the general characteristics of humanity, by the distinguishing features of the moral groups to which individuals belong, and by the specialties of endowment which belong to individuals, — this is at once necessary and not easy to accomplish. We may more easily find the teacher inclined to visit upon the pupil his human faults as if they were exceptional enormities, to ignore the child's proper type of character, and to encounter the individual in that spirit of opposition which makes human beings instinctively and at once inimical to each other.

So the teacher's business is threefold, and in its prosecution he becomes a learner. He must study every pupil committed to his charge, first as human, then as belonging to a group, lastly as an individual.

Worthy ideas of human nature and an adequate understanding of it are the first requisites of a teacher; are in fact things of necessity, whose absence no amount of skill or erudition can make good: for it is plain that no one who thinks meanly of human nature will be able to present to his pupils any noble or worthy human ideal. The question which Christ rejected when it referred to a physical defect may well be asked in view of the mental and moral disabilities of individuals. "Did this man sin, or his teachers?" we may ask when we meet with one so ignorant or so obstinate as to be blind to the common truth of things. There is a close and curious logic in social results by which they may always be traced back to efficient causes. This logic, if properly followed up, would, I think, teach us that a want of reverence, a false standard of dignity and merit, often seen among Americans at the present time, spring primarily out of defective education. The public standard with regard to these things is undoubtedly powerful, and often misleading; but I doubt whether the teacher in the first place starts the child in life with a clear idea of what he is to seek, and how he is to seek it. Success in life may be so presented to the mind of the child as to involve, if attained, a moral failure: success of the militant, combatant kind,

— getting ahead of other people, outwitting them, amassing money without rendering real service, and gathering reputation without merit. The pseudo-Christianity of Old-World dogma is weak to-day among those who teach and train; but has the intrinsic Christianity of labor and service taken its place? Do Americans consider it noble to live idly and to be served by inferiors, so long after Christ's teaching that the true servant is the true master?

Mastery over self, the source of all true and solid dominion, will never be acquired upon the easy plane of smartness and superficial civility. And at this point it seems to me that we may notice two opposite directions in which youth may be trained: one of these leads to the love of luxury, following and flattering a natural instinct; the other leads to the love of uses, which is attained through moral training.

Luxury follows tastes, and is chiefly intent upon the means of gratifying them. A child, at least an ordinary one, will very easily come to consider it the great object of his life to get and keep what he likes best. Such a one, if pampered at the outset, will learn to roll himself closely in a silken sheet of indulgence. He will assume the attitude of one who has a right to insist that all things shall minister to his pleasure and convenience. Not this the Spartan, the Germanic training. Not of such did noble Persian, Greek, or Roman come. Such a man or woman will sit passive in the midst of this revolving universe, and will say to Nature herself, "Be thou my menial; thy highest office is to delight and amuse me." Can science, art, civilization follow out of such an assumption?

The love of uses leads each one of us out of self, because use is really in things large and comprehensive, as well as practical. The dignity and fruitfulness of true human relation, to the state, the church, the family, to the great unity which we call nature, to the great mystery which we call divine, — this vista opens out before us all in the direction of service and of duty. Such a view of life, held up before the eyes of youth, imposes reverence. In this great harmony of object and obligation, who would be either a discord or a silence? The question will now become, not "What shall I do to please or advance myself?" but "What shall I do to deserve my place and meet my opportunities in this great economy of the world's administration?" Walk abroad with two men, trained in these opposite ways: one will look down upon Nature, the other will look up to her. The one will exhibit the shallow contempt, shallow respect of the fribble; the other, the tender, duteous appreciation of the student and observer.

Now, the love of luxury, developed and instilled in our children of to-day, begets these shallow views, which, when held up to the world by unfriendly criticism, grieve and mortify us. Art herself, becoming the minister of luxury, loses her heroic significance. The heads painted by Titian, Angelo, Raphael, Sodoma, did not come of this way of thinking. The severity of faith and of good faith is in them. Swinburne poetry, Gérôme pictures, Offenbach operas, loose social morals, and a swindling money market, — all of these grow out of a love of luxury, trained to usurp the place of a love of use.

We may excuse this by saying that it is a reaction against the Puritanic narrowness of an earlier age. But is human society always destined to run into fatal extremes, plunging into the gully now on this side of the road, now on the other, and never following the road itself?

An inadequate conception of use may be enlarged. The use of beautiful things for high delight and instruction should never be lost sight of. The use of recreation, of amusement, as a rest from labor and a stimulant to further effort, — a true æsthetic must occupy itself with these things. They are of great importance to the well-being of every community. But the onwardness of progress, the efficiency of industry, must never cease to accompany the music of high sensibility.

I believe that the supremacy of wealth as an object, to-day, may in a measure be traced back to this deficient and erroneous education of youthful inclination and impulse. I know that shortcomings in education, as in all else, are more easily seen than avoided. I know too, in some degree, the value even of simple human passion and inclination as whip and spur to our natural indolence. But I feel above all else that educators in America are bound to concert their plans and increase their efforts in order to uphold a scheme of education worthy of the children of a great democratic republic. Their first object should be to present to the young persons under their charge a view of life so just and adequate that these, passing from the bounds of tutelage, shall know where and how to seek the real honor, the steadfast good, the abiding triumph of the just.

There is one aspect of luxury which has so direct a bearing upon our national education that I cannot refrain from mentioning it. I observe it partly in the general devotion to fashionable dress, but most in the craze for decoration which has for some time past been diffusing itself in various parts of our country, and which some, no doubt, mistake for an art revival.

Of the last I will speak first. The relation of art to luxury is compulsory, but not congenial; the result of circumstances, not of sympathy. Art is obliged to court wealth because the rich alone can pay for works of art. But art's true office is to equalize human conditions by putting the beautiful into a permanent and recognizable shape, and by causing high delights to take the place of sensuous tastes and pleasures. Since, moreover, the wealth of a country, though massed in the hands of a few, is really earned by the labor of the many, it follows that public works of art are a right and a common possession of the *proletariat*, or working-people's republic.

Has art among us attained these high results? I do not think that it has, either in theory or in practice. In the view of most people, nowadays, art is subservient to two main objects, — bread-getting for the artist, and display for those who employ him.

How many are there among us who understand the language of a great picture? Sit down before this work. It has much to tell you. It preserves for you the life of some historic scene or person, the subtle essence of some religious persuasion, the evanescent beauty of some fair face or perfect landscape. Whatever may be its subject, remember that the picture is a gift, and a costly one. When it has given you pleasure, think of the pains that lie behind it; the days, perhaps the years of effort, hope, discouragement through which the artist labored to bring about a result which should present the thought and sentiment of one age in concrete life before the sight of succeeding ones.

If this picture can teach you something about itself, and something about art in general, you may possibly have something to say about it which shall help others to understand it. Or, the sight of it may have awakened a kindred vein in your own heart. How lovely is the anecdote of the great painter, who, on beholding the admirable work of another, modestly said, "Anch' io sono pittore!" (I too am a painter!) In this exclamation he did not express a sense of his own merit, but the joy of belonging to a profession which could produce a thing of such surpassing beauty. Few of us can contemplate great works of art and say, "I too am a painter"; but it is much if we can say, "I too recognize and reverence the spirit of art."

It is because art in America has done so little to supplant artifice that I reproach it with incompetence. I turn to the possessor of a first-class picture, and say, If you have this beautiful painting, whose value its cost might teach you, you do not want a hundred glittering gimcracks besides. Be you man or woman, it should afford you daily pleasure and instruction. Dispelling the rage of excitement and appetite, it should lift you into its atmosphere, calm you with its peace. But you, who have bought and paid for it, hold still to all that is frivolous and harmful; to your dressing and flirting, or to your gaming, dining, wining, or worse. The picture is a dead letter in your book of life. But in some instances the possessor of the picture might turn to me and say, "A truce to this nonsense. What was this picture painted for? For my money. I bought the artist before I bought the picture." Then, indeed, I should find nothing to say in return.

Can any art hope to repress in woman that passion for personal adornment which every blast of æstheticism seems to fan into a fiercer flame? How can we disabuse a young girl of the illusion which leads her to think that her personal appearance is a theme of inexhaustible interest to mankind at large? What restless demon compels her to turn and turn in an unceasing round of exhibitions, mostly objectless, and with no imaginable rational aim? Like an unhappy whirlwind she sweeps through the streets, gathering up at each step fresh costumes, fresh combinations of color and material, in fancy if not in fact. Her life is built, not only on the sand, but of it. Behind her it dissipates to nothing.

Can education confer upon men and women the power of self-sacrifice and the grace of self-forgetfulness? Selfhood is at once a great power and a great weakness in humanity. Self-reliance and personal moral conviction are traits of power and of heroism; self-seeking and self-assertion belong to weakness and the unheroic. I believe in the virtues of individuality, but I fear its vices.

Deep thought and deep study lead away from these arid regions of the mind, these deserts in which nothing substantial will take root. Has our education no subsoil plough to pierce the crust of habit and circumstance, and reach the under stratum of character in which, if anywhere, lies the generative power of ideas? How can we lead the thoughtless to think? how so interest them in the things of thought that they shall apply themselves to the most painful and precious of arts, that of thinking rightly and sufficiently?

Disproportionate, ill-directed ambitions spring perhaps from the size of our immense country. "Shall I, an American, be no bigger than the denizen of some territory smaller than the smallest of the United States?" There may follow dreams of large reputation, of extraordinary recognition, etc. But nobody ever did or ever will achieve greatness in this flighty way. Its secret remains a secret to the vain and impatient.

Incompatibilities. — The life of the individual is very brief. The personality of the individual is very small. We are allied on one side to the infinite and immortal, but we attain its objects best by working with patient zeal at the duties nearest to us and most obvious to all. Life is too short to combine sense with nonsense, the frivolous with the solid. Recreation helps the most laborious career, but dissipation brings to naught the happiest gifts and the most brilliant undertakings. The milliner's block will not help the painter's easel. The devotee of small wit will not attain the elevation of philosophic thought. The kingdom of heaven is present with us on earth; but a human prophet has neither place nor function in it.

Whence comes that want of confidence in American institutions which often strikes us in the utterances alike of private individuals and of writers in our public prints? I shall not throw the blame of this upon our native teachers; but I will ask them to bear in mind both the fact itself and the source from which I derive it, as dangers against which provision should be made.

The literary offices of our country are largely administered by foreigners, whom we have made Americans as to their political rights and privileges, but whose opinions and convictions, formed in an atmosphere widely different from our own, we have not been able to Americanize. These persons have the education of their own class, usually not a governing one, in their own country. They have not had the education which would enable them to lead all classes here in a normal direction. Here an Irish editor has twisted a whole generation of young Americans into the narrowness of the prejudices which he brought with him to these shores, and which have never left him. Here is a German holding a position of great responsibility in our Federal government. There are hosts of other Germans, filling our papers with German views of American literature and of American policy. The blackguardism which the New York "Herald" has done its best to outgrow was that of a low-lived Celt, whose ideas of decency and propriety received their full expression in that paper as it used to be. Offices of tuition are largely, though not so largely, in the hands of foreigners. Within the last twenty years a reaction has made itself felt in favor of American education for American men and women; yet one may fear that in the time preceding this, much partial and superannuated prejudice may have been planted in a soil which bears what it does bear largely and generously. It would be thankless and absurd for us to say that this participation of European immigrants in our most important work has brought us nothing but harm. Our educators are bound to recognize the intellectual indebtedness of America to Old-World civilization. But if our fathers indeed made in their time a new departure, if they left to their descendants a theory of human right and duty which the Old World had not and has not yet adopted, it will not be to Old-World men and women that we can most safely commit the most important part of our children's training, — that which shall form their theories of relation and of life.

I have lately been reading Fichte's lectures upon what he, writing in 1807–8, calls "the fundamental traits of the present age." Foremost among these traits he recognizes a widespread zeal for the form of knowledge, with a corresponding indifference as to its matter. The age has, he says, forsaken ideas, and has given itself up to conceptions. He means by this, as I read it, that the people of his time were prone to hasty and self-sufficient judgment, but impatient of the care and study by which alone a proper standard of judgment can be formed.

The day in which Fichte wrote is already removed from ours by nearly three quarters of a century. But his criticisms have a lasting interest because they point at faults to which human nature is prone; and the one which I have just quoted reminds me of the Scriptural saying that the letter kills, while the spirit gives life.

The letter of knowledge indeed delights all who become acquainted with it. It is so much of truth as we can master with the mechanical appliances of our mind (memory and comparison). By it we can conclusively justify ourselves and condemn others. In its power, the Pharisee boasted and the Inquisition burned. But beyond all our attainments there remains a mysterious spirit of truth, whose measure we must seek, and whose judgment we must remember as far above our own. Education necessarily busies itself with the letter, the form of instruction; but if the teacher fails to awaken in the pupil a spirit of reverence for the truth which transcends human measure, he fails in the most important duty of his office. For it is the teachable spirit that makes the wise man.

I will close these remarks by saying that I salute the rising sun of education with a tender envy of those who are destined to grow and ripen in its light.

Unquestionably, the hand of Providence is opening up a great domain of knowledge for those who are to follow us. The inventions and appliances which are so wonderfully changing the relations of space and time, render possible a wide enlargement of human knowledge and a fortunate and fruitful concert of human effort. Among all the new features of the century's decline, none is so new as that which promises us the emancipation of women from the double yoke of ignorance and of political inefficiency. The higher education, the fuller responsibility, which are henceforth to belong to them, will spare great woe to the world, and will relieve society from the waste of some of its noblest and best resources.

We cannot exactly predict the way in which these new developments will change the aspect of the social world. But I can imagine some woman of the new order standing here a score of years hence, and hearing through a phonograph the echo of some of the words that I have said to-day. If this is conceivable, I can further imagine that she would ask, "What were those antiquated vanities that the discontented sibyl harped upon twenty years ago? Are not all American women in our time sensible, and are not the men and women of the United States united in their devotion to republican ideas, and to that simplicity which truly represents them?" So may it be.

THE SCHOOL CURRICULUM AND ITS RELATIONS TO BUSINESS LIFE.

BY W. A. MOWRY, A. M.

EDUCATION is a broad word: it is wider than the schools, deeper than the curriculum of studies, and higher than childhood and youth. It is not confined to the schools: it begins with the first dawning of the infantile intellect, and it is finished, if at all, in the heavenly world. In its scope it includes all the studies of the school and the college; all the trades and the industries; the editor's sanctum and the historian's study; the poet's favorite glen, where genius most inspires and nature thrills; the artist's studio; the monk's cloister; the field of carnage; the mart of trade; the nations' great highways upon the briny deep; the office of the statesman and the diplomatist; the platform of the orator; the pulpit of the preacher. Infancy, youth, manhood, and age, all alike belong to the realm of education.

With what phrases shall it be *defined?* How shall it be chained down with the words of the dictionary? Its *limits* can hardly be determined; how then can its meaning? Only by catching its spirit and describing its genius; by observing its mission, and noting its intent, its methods, and its results.

Webster defines "to educate" as follows: —

"To *bring up*, as a child; to *lead out* and *train* the mental powers of; to *inform* and *enlighten* the understanding of; to *form* and *regulate* the principles and character of; to *prepare* and *fit* for any calling or business, or for activity and usefulness in life."

Observe the scope of this definition, — the verbs used: —

1, To *bring up;* 2, to *lead out;* 3, to *train;* 4, to *inform;* 5, to *enlighten;* 6, to *form;* 7, to *regulate;* 8, to *prepare;* 9, to *fit.*

Observe, also, the forces and the objects upon which these verbs exert their power: —

1, Bring up a *child;* 2, lead out and train the *mental powers;* 3, inform and enlighten the *understanding;* 4, form and regulate the *principles* and *character;* 5, prepare and fit for any *calling* or *business;* 6, or for *activity* and *usefulness* in life.

In fact, this leaves nothing out. It includes the whole of life: its purposes, its objects, its intentions, its methods, its results; its enjoyments, its happiness, its usefulness.

Such, then, is education. What are its relations to *business?* How shall a *system* of education be so arranged as best to prepare the young for the business of this life? Shall such system include or exclude the high school? Is the high school an important factor in the best and most complete, the most successful preparation of the young for business life? And what should be the true course of studies in the high school, to produce the best results?

These are the questions which must engage our attention in this paper. Many things seem to indicate that this is the age of materialism. Many tendencies, at least, are materialistic. Too many minds — sometimes of an order too high to make such opinions excusable — either obscure the difference, or altogether blot out the distinction between mind and matter. But we must not make that mistake. It is upon the mind we are at work; and it becomes a matter of profound interest to us not to carry material analogies too far, when we apply them to the realm of spirit. While it is true that there are laws of mind and of its education that may not easily find analogies in the material world, yet it is true also that there are laws which pertain to the mind which closely resemble the laws that pertain to matter. For example, the entire vegetable world is subject to the law of growth. We have the several periods of the life, growth, and decay of all vegetation; and we have the same in human life. The germ, the twig, the well-grown tree, its period of full maturity, its decay, and final death, all resemble the periods of human life. Again, this human life in its several stages is analogous to the quality and strength and characteristics in general of the mental powers. The mind in childhood is similar in its qualities and development to the body; in manhood the same is true, and in old age. The rapid and vigorous growth of a young tree, as it approaches its period of early ripeness and maturity, closely resembles the intense physical and mental growth, development, and activity of the corresponding period of vigor and maturity, both physical and mental, in mankind. So the later period in life of the one bears a strong likeness to the corresponding time in the other.

Again, the laws of development and improvement of the one agree with the corresponding laws of the other. You take the wild strawberry in the state of nature, and by long periods of careful nursing, culture, and care, produce that delicious fruit, of late years found in the markets in such abundance, extreme cheapness, and delicate flavor. Or the wild pear or apple, by equal and long-continued patient care, generation after generation, finally has yielded to *education* or *development* or *culture*, and has given us the almost endless varieties of this delicious fruit now found in the vast orchards of the land.

So we have taken the untutored savages of the Gauls and the Teutons and the Britons, and by long periods of culture and education and development, have produced the foremost, most enlightened and cultivated nations of to-day.

As strawberries and apples and pears are improved by cultivation, so must be improved brain quality and power, will quality and power; hence civilization, enlightenment, and character.

If one age improves upon the preceding age, it must be done to a great extent in the schools.

Tradesmen improve the methods of their work; nurserymen improve the varieties of their fruits and foliage, flowers and trees; railroad-men improve their systems of running trains; seamen improve their way of navigating the ocean: but all these improvements depend upon something else.

Who causes the tradesmen to improve in quality, or the nurserymen, or the railroad-men, or the seamen, so that by the improved and quickened mind of these various classes, they may be *able* to make the necessary improvements in their several callings?

The old legend of Solomon has it, that when he was building the great Temple he gave a banquet to all the artisans. While they were feasting, he passed around among them and inquired of one man what his occupation was. "I am a carpenter," said he. "Well," inquired the king, "who makes your tools?" "The blacksmith," replied the carpenter. Of another he inquired, "And what is your occupation?" "I am a mason." "Who makes *your* tools?" "The blacksmith," was his reply also. And a similar question from every man brought the same answer, "The blacksmith makes my tools"; until finally he asked of the blacksmith himself, "And who makes *your* tools?" "I make them myself," was his reply. "And King Solomon," so goes the story, "pronounced the blacksmith to be the master mechanic, for he alone of them all *makes his own tools.*"

Now, when we apply this legend to the affairs of life, we may ask, Who gives to the tradesman, the nurseryman, the railroad-man, or the seaman the *power* to make marked improvement in the methods and means of his profession? We must go back to the old aphorism, that "The schoolmaster is abroad" in the land; the school-house, *alias* knowledge-box, *alias* temple of science, *alias* brain factory, is seen upon every hillside and in every valley. But which is the correct *alias* for the *school-house?* Is it the principal office of the school that the pupils should acquire knowledge? If so, then the proper name for the house is "knowledge-box." Or is it the peculiar office of the school to unfold the principles and explain the application of the sciences? If so, then it is a "temple of science."

Is not the school-house rather designed to develop and strengthen and to put under complete control the entire powers of man, to develop his ability, to broaden his mind, to increase his power; not so much to store up knowledge as to tell him what knowledge there is, where it may be found when needed, what it is good for, and how it can be used?

The fundamental design of the school, then, is to develop humanity; to cause the mind to grow; to deepen and to broaden and to place all these increased powers in the control of the man; to give him a broader scope, a higher reach, and a stronger grasp.

If I am right, then the school should not teach a trade, but those principles which underlie the trades; not how to peg or sew a shoe, and thereby earn one's daily bread, but being a shoemaker, how to do better work and do it cheaper; not how to perform the labor of a farmer, but being a farmer, to be a *better* farmer than if he had never been at school; above all, being a *man*, to be a wiser, a more useful, a more successful, and a *better* man, — less like a demon, less like a brute, more like an angel, more like *God.*

The work of the school, then, is to develop *power* and *goodness.* If the preceding view is correct, then it must follow that that community or that country which carries the school to its highest point, is necessarily the most intelligent, the most prosperous, and the most happy people. As the people become more intelligent, broader minded, their modes of doing business improve; they do more business, do it better, and produce results at less expense. Thus will the high school affect the business life of a community.

We come, then, to inquire what should be the true course of study that shall bring to pass the greatest advantages, that shall affect in the highest and best manner the business of life. Here, too, it is important to bear in mind that the primary object of a course of study, as has already been said, is not the acquisition of useful knowledge, but the growth and discipline and improvement of the mind. What, then, should be that true order of studies which shall best develop the various powers of the mind, and place them under one's most complete control?

Here it is necessary, from the absolute necessity of brevity, to consider the subject with special reference to practical wants rather than to develop any preconceived theory. We shall therefore make direct reference to existing systems and current methods. Let us observe, then, that the generally accepted plan of common-school education is based upon the *mathematics.* The traditional three R's have a deep meaning. A child must learn to *read* and to *write* that he may be able to "*figure.*" "I want you to learn my boy 'rithmetic' and then he won't get cheated," has a more profound signification than at first sight appears. Besides, the philosophy which it hints at is deeper seated, and the results broader and of more general application than may at the outset be apparent.

It is often assumed, either consciously or unconsciously, that the study of arithmetic has a greater power of expanding the reasoning faculties, and that it produces a greater and more rapid growth of mind than any other branch of study. Again, in general practice, it is undoubtedly true that the schools are graded and the pupils ranked more by their progress in arithmetic than in any or all other studies. A pupil changes from one school to another. The first question asked of the new-comer is, "How far have you advanced in arithmetic?" and he is placed in a class in accordance with his proficiency and evident ability in that branch of study, with but very little reference to what he has done or can do in reading, writing, composing, or understanding the English language, or whether he has studied geography or natural history or other branches.

Upon the theory advanced above, this is totally wrong and indefensible. Arithmetic, like the other branches of mathematical study, improves the reasoning faculties only to a limited extent and in certain directions. There is a broader and a better way.

Besides, it is not wholly or principally the reasoning faculties that should be improved at the age of from eight to fourteen, when most pupils are largely engaged in the study of arithmetic. The power to reason is but slowly developed at this age; but the powers of observation, of choice, of discrimination, of fixing and retaining in the memory forms and shapes and sizes and location and relation, are easily and rapidly and naturally developed. This is the period rather of *learning to read, easily, fluently, smoothly, understandingly;* of learning the meaning and the use of words, of improving and increasing one's vocabulary, and of acquiring the rare but valuable habit of the correct and accurate use of good words. Besides this, at the age named, it is important that the child become acquainted with the general facts and principles of geography and natural history. It has always been a great surprise to many that so much time is spent in the study of geography, — the location of towns, rivers, bays, etc., in Asia, Africa, and South America, — while the boys and girls remain, so far as any school instruction is concerned, totally ignorant of the birds and beasts and fishes and flowers and plants and trees living and growing around them. Is it not of more *use* to learn the kinds of trees growing by the roadside, in the groves and forests near you; the names and species and families, qualities and uses of the numerous classes of plants and shrubs to be seen every summer's day, than the names of the capes and gulfs and mountains of Patagonia or Abyssinia?

But this is not the principal reason for this proposed change.

In learning the almost endless detail of geographical facts, no laws of association aid the memory, except perhaps the forced and constrained fancied resemblance, often very crude, between the *map* and the countries or places represented. But in the study of botany and of zoölogy the natural order is followed, so that the application of what is learned from the living teacher and the book is constantly being made to the thing itself. The powers of *observation* are rapidly, philosophically, and usefully cultivated.

Let us, then, map out the proper course of study for the young from the time they commence their school work till they have finished the studies of the common English branches; that is, till they leave the grammar schools and are prepared to take up the true course of study in the *high school.* The fundamental principle on which this course should be based is the order of the development of the mental powers. The perceptive faculties and the imagination are developed early; so is the memory. The power to reason, the entire logical faculty, is of later growth. From the age of five or six, when the child ordinarily begins his school days, till twelve or fourteen, is the age of perception, imagination, and memory.

Moreover, the memory during this period follows certain laws, foremost among them being the objective laws, and specially association by similarity and contrast. The practice of comparing one thing with another is therefore constantly going on. However little may really be known, everything *unknown* is compared with *something* known.

It becomes important, therefore, that we follow these laws in our attempts to develop, improve, and strengthen the powers of the child's mind. Hence it is that the objective system of teaching, by the concrete, by outward tangible forms, by actual things, by pictures,— in short, by an appeal to the senses, to sense-perception, — is philosophical and necessary.

We first address ourselves to the acquisition of the arts of reading and writing. By all the varied and most approved methods of learning to read and to write, the child should, before taking up any of those *studies,* so called, which depend *upon* the art of reading, become proficient in picking up thought from the printed or written page. Here we have or should have a *twofold* object: first, the discipline of the mind, the development of power to grasp ideas and use them, to perceive, to observe, to compare, to decide; secondly, the acquisition of a useful art, — the learning to read in order that we may be *able* to learn geography, natural history, and other things from books.

While the pupil is learning these things, he may also cultivate the memory, and exercise his powers in various directions by acquiring through the memory a knowledge of many useful things; *e. g.*, the elements of botany, natural history, definitions, things in common use, and the arithmetical tables, — slowly and progressively.

In connection with the learning to read, much should be done by the living teacher in acquainting the child with a multitude of important, useful, and interesting things; in waking up his powers, leading him to observe, and making him familiar with many matters not in a text-book. Before he is fourteen he may become familiar with the elementary facts and principles of geography, natural history, the correct use of the English language either written or spoken, elementary arithmetic, and leading facts and principles relating to the history of our own nation. Without entering into the details of the methods by which this is accomplished, it is important for us to keep in mind the principle that underlies the work. Briefly stated, this is to make the child familiar not so much with arithmetic as with language. The *form* and the *power* of *words* and *sentences*, of *propositions* and the *thoughts* they represent, are all-important to the young learner. In practical life, all or nearly all our ideas come to us through the use of language; in childhood, therefore, we cannot become too familiar with language, with words, with forms of expression.

We come now to the high-school course of instruction, by which the child is to be fitted for business life; and we inquire what should be the principles which underlie the course to be pursued, and from which we deduce the *true order* of *studies*.

Here we assume that the child has reached the age of from fourteen to sixteen years, and has been instructed in the studies named above. He is now at such a stage of mental development that we may reasonably presume him capable of attending to various disciplinary and useful branches. We inquire what are the departments of study which should be attended to, — from which we may expect the greatest discipline of mind and the largest amount of valuable knowledge, — and how they should be pursued. We observe, then, that for the first portion of this course the mind should be cultivated in *three directions:* viz., (1) literary studies; (2) natural science; (3) the mathematics.

The mind has powers; these powers are not simple and single, they are multiform, compound, and complex. It is important that the powers of the mind be developed harmoniously, uniformly. We make a mistake if we cultivate only the *mathematical* powers. The *being* is threefold: body, mind, soul. The cultivation of the mind should be carried on with this in view; and at the stage in life of which we are now speaking, three classes of powers or qualities of the mind should be cultivated: We should, in the first place, carry forward the mental growth by carefully drilling the mind, day by day, year after year, in rhetoric, English composition, analysis of language, thoughts of our best authors both as to the matter and manner (style), and the general study of English literature. Secondly, we should at the same time pursue the study of the physical sciences. Following the previous study of natural history and geography should appear elementary natural philosophy, physics, chemistry, astronomy, physiology, sometime sadding geology, mineralogy, etc. Thirdly, the mathematics, in the following order: (*a*) elementary algebra; (*b*) elementary geometry; (*c*) advanced geometry; (*d*) advanced algebra; (*e*) trigonometry and surveying; and then (*f*) advanced arithmetic, and the application of algebra and geometry *to* arithmetic.

After three years, perhaps, in these three studies or classes of study, we may profitably change off to another trinity of branches: viz., (1) history; (2) metaphysics; and (3) practical applications. But it must not be supposed that history has been utterly ignored till this period in the mind's development. All the way along, facts have been culled and stored up relating to the progress of events in the world's development, especially in reference to our own country. Now, however, history should be pursued with higher aims, — with the intention of learning not merely fundamental *facts*, but the development and growth of nations, usages, forms and degrees of civilization, the causes of the growth and the decay of nations and forms and institutions, — in short, the history of the progress of our race. (2.) The mind may now grasp the principles of logic and mental philosophy; and no branches can be pursued more useful or more practical than these, both in reference to the growth and development of the mind, and the practical utility of the study in subsequent years. (3.) Among the practical applications to be pursued may be named the study of the Constitution of our country, the underlying forms and methods of government, the balance of powers between the States and the nation, the several departments of government (legislative, executive, and judicial), the general arrangement of courts (local, State, and national), the duties of an American citizen, the study of political economy, and the like.

Two things a good teacher must do. First, he should take care to balance properly the several studies pursued, so that the training shall be full, complete, systematic. The want of well-balanced minds is a serious fault of this age. Inventors, or would-be inventors, are found who spend years of time and large sums of money upon an insane attempt to produce a result that any respectable scholar in mechanics or chemistry could have told them in five minutes could never be obtained. Mathematicians are found, who, though experts in their favorite studies, are nevertheless useless in the world for want of the proper training and development of other faculties. Lawsuits in numberless cases are entered upon and fought through to the bitter end (frequently terminating like the famous case brought before Mr. Justice Monkey, concerning the cheese), simply from a misunderstanding, or from a wrong use or a wrong interpretation of language. Education should aim to produce well-balanced minds, not erratic geniuses.

In the second place, the teacher should always remember that the book is only an aid, and that many things are to be taught which are not found in the routine curriculum. By this combined method the pupil will be properly developed into something like a symmetrical character. Honesty will not be sacrificed to taste and good breeding, but many an honest soul will have its sharp, angular edges rounded off, and the rough marble polished into well-proportioned and beautiful columns.

What then will be the influence of the high school, with this proper curriculum of studies, upon the business life of our country?

If there is one thing more evident than another in these days, it is that within the last quarter of a century all the old methods of doing business have, through the influence of the universal diffusion of knowledge, been radically changed.

I venture to say that during the last half-century, greater changes have taken place in the world's life than ever before in any period of five hundred years. But what shall we see in the future?

Were John Jacob Astor and Stephen Girard young men of business to-day, and bent on amassing a fortune, it would be absolutely necessary for them to change essentially the tactics of their business methods, so successful in the early part of this century. Certain fundamental principles will ever remain the same; but as our knowledge of the sciences increases, the structure built upon these foundation stones differs widely from the old building erected by the fathers and the grandfathers.

The young man who is to-day launched upon the broad tide of trade will find the science of navigation so entirely changed from what is laid down in the books, that if he have no guide but the old rules, he will possibly be under the necessity of taking a pilot on board, or of risking the entire destruction of his bark and its freight. To conduct any kind of mercantile or manufacturing business successfully to-day, and for twenty-five years to come, will require a far greater discipline of mind, a more liberal culture, a more generous scholarship than were necessary a generation ago.

Besides all this, we live in a republic, and it is hoped that a despotism is not possible in America. But in a republic every man is equal before the law.

It is necessary, then, to *abolish caste.* Your bootblack to-day may be your lawyer to-morrow, and the rail-splitter or the tanner or the humble schoolmaster at twenty years of age may become the chief magistrate of fifty millions of free people before he is fifty. For more than twenty years we have had a President who has climbed up from the lower walks of life. Let, then, the processes of education go on; let the young teachers of to-day strive to teach better than the elders now teach. Let the doors of the school-house, the "brain factory," be open to all the children; and the child once started on the career of learning, let him not find those doors ever closed against him till, if he so elects, he shall have completed not merely the course of study in the common English branches, but in the English high school, the scientific school, or the college.

Thus will be brought about the time when will be realized on earth the two great principles alike of the highest human philosophy and of our holy religion: the *common fatherhood of God* and the *equal brotherhood of man.*

MORAL AND LITERARY TRAINING IN PUBLIC SCHOOLS.

BY JOHN B. PEASLEE, LL. D.

I SHALL not discuss the methods by which English literature is now taught in our high schools and colleges, as the literary work which I shall advocate in this paper will not interfere in the least with that which these institutions are endeavoring to accomplish, but will be additional and supplementary to their noble work. That my position may not be misunderstood, I desire to say in the outset that I am decidedly in favor of retaining the present systematic study of English literature as a *distinct branch* in these institutions; instead of substituting anything for this work, as some erroneously suppose, I would give much more of it. In my opinion, however, our high-school courses of study in English literature *should begin with the authors of to-day (American) and go back to Chaucer*, instead of beginning with Chaucer and coming down to the present time.

I desire, before entering fully upon my subject, to call the attention of educators to some of the mistakes that must be corrected before the public schools of our country can reach the highest standard of excellence in literary and moral training. One of these is the disproportionate amount of time given to the subject of arithmetic. Arithmetic has been and ever must be one of the fundamental branches of our common-school curriculum, and I yield to no man in my estimate of the importance of the subject, both in regard to what is usually considered as its practical bearing upon the business affairs of life, and its excellence as a means of mental discipline. Nor am I among those who would cut down the course of study in arithmetic to a few subjects, to those only that are generally considered absolutely necessary for all to know, to that only which is called "practical." Practical! there is a higher practical than the mere use that some of us may make of it in adding up our grocers' bills, or perchance in calculating discount and interest. The mental discipline, the strengthening of the mind, the intellectual power that the scholar obtains by the study of this subject, is the *real practical*, the *higher practical*. It will never do to confine our courses of study in mathematics to that only which popular opinion considers practical. I object, therefore, not that there is too much ground covered in the arithmetic, or that it is too well taught, but that there is too much time given to it.*

* NOTE. — This has grown out of the mistaken notion of parents and teachers that the more time there is given to a study, the more the pupils will necessarily learn of that study.

President Andrews, of Marietta, Ohio, who is known to be exceedingly accurate in his statements, says that more than one half of the time of the schools of that State, outside of the cities and large towns, is given to arithmetic. Think of it: more time devoted to this one subject than to reading, writing, spelling, geography, and grammar combined; none to literature and composition! And what is true of the schools of Ohio in this respect is true of those of most, at least, of the other States. Let the teachers of these schools cut down the time given to this subject to within the bounds of reason; introduce composition, letter-writing, and business forms; let them stop working puzzles in mathematics which are about as profitable as the famous fifteen puzzle, and turn their attention to reading, to improving themselves in literature, to acquainting themselves with the lives and writings of great authors: and let them take the results of that work into their school-rooms, and they would revolutionize the country schools of the United States.

In our city schools, less time, to be sure, is given in the programmes; still, taking into consideration the amount of home work required of the pupils, and the extra time taken to "bring up" the arithmetic, it is entirely too much. A half-hour per day in the lower grades, and forty minutes in the upper, are amply sufficient. But the teachers have been made to feel that high per cents in arithmetic are the *sine qua non* of their success; hence, driving and cramming for per cents largely take the place of judicious teaching, to the great detriment of the pupils.

Fellow-teachers, let us use all our influence against this cramming, stultifying process, this driving for per cents, and teach according

Paradoxical as it may seem, the children of our *district schools* would learn just as much arithmetic as they now do if less than one half of the present average amount of time were given to it. A little child can learn something of a number of subjects, and not much of any one. It can learn as much arithmetic, on an average, in one hour a day as in ten; for in the hour its mind will take all it can assimilate, and any attempt to teach it more than this becomes a cramming, a stultifying process, and defeats its own end.

Teachers should therefore bear in mind, in making out their time-tables of study and recitations, that only a limited amount of time per day can be *profitably* given to any one subject in the lower grades of the schools.

It will be remembered that in London a few years ago half-time schools were established for the youth who were compelled by necessity to work in factories, etc. The school inspectors thought, of course, the pupils who attended these schools could accomplish only one half as much as those who attended the full time. Imagine their surprise and astonishment to find, after careful and thorough investigation, that the half-time pupils not only kept up with the others, but surpassed them in their studies. Let me say here, by way of parenthesis, that the fault of too much study for little children lies in the direction of cramming in some of the branches, and not in the variety of studies; that diversity in mental labor is less laborious than much dwelling on one or a few subjects. As many subjects, therefore, as can be taught *well* should be taught.

to the natural, the objective, the developing method; ịp insre our pupils with higher and nobler aspirations than are to be found in monthly averages : and let the measure of time devoted to each subject, and the methods employed in teaching the same, be determined, not by the question, How shall we obtain the highest per cents ? but by what will best benefit our pupils in after life. This done, and there will not only be better instruction in all the branches, but much more prominence will be given to language, to composition, and to literature; and our youth will grow up under such tuition to be more intelligent, useful, and influential citizens.

Another mistake — one which has a more direct bearing on my subject, as it affects the tastes of pupils for reading — is the pernicious method of teaching history usually pursued. I refer to the stultifying process of compelling the children of our schools to commit to memory text-books in this subject. No historian, as no mineralogist or chemist, was ever made by committing text-books to memory. History cannot be taught successfully by the *memoriter* plan. It kills the life of the subject. It disgusts the pupils and gives them a dislike for historical reading. As the pupils take no interest in the subject, it is soon forgotten, and there remains only the bitter recollection of tiresome hours devoted to what, if properly taught, brings profit and pleasure. As one of the principal objects of this paper is to show how to interest our youth in good reading, I will briefly explain, not only how history can be made intensely interesting and exceedingly instructive to pupils, but how a love of historical research can be implanted in them that will remain with them through life, and very largely influence their subsequent reading. First, all written percented examinations in this subject should be abolished. What is said in the text-book upon the topic under consideration should be read by the pupils under the direction of the teacher. The teacher should see that they thoroughly understand what they read, and at each lesson question them in brief review of the previous lesson. She should read, or cause to be read, parts of other histories or reference books (encyclopædias, gazetteers, etc.) that bear upon the subject of the lesson. She should also give out questions, the answers to which the pupils are to find for themselves; and should encourage them in relating historical anecdotes and in giving sketches of noted events to their classmates.

But history should be taught principally *by biography*. Biography is the *soul* of history. The life of a great personage, as of Cromwell, Napoleon, or Washington, contains nearly everything of importance in the history of the time and country in which he lived. Nothing is more entertaining to the young than the lives of the great men and women who have borne a prominent part in the world. I am not advocating a new theory. This method has been tried for two years in Cincinnati: and in one school alone, more than five hundred historical and biographical sketches were read within the past year; and in one class, sixty-four biographical sketches were given by the pupils to their classmates; and the constant allusion to other lives than those under actual discussion led to a wide field of further research. Let me say here, that in a class in United States history, I would not confine the biographical work to our own country, but would encourage the children to read and recite sketches of noted personages of other countries and of different ages. If the method briefly indicated above be pursued, the pupils will become enthusiastic in the subject of history, and will gain a vast amount of valuable information of which they would otherwise remain in ignorance; but above all, they will form the habit of and a taste for reading good books, which will remain with them through life.

Another mistake consists in giving too much time in the reading lesson to mere *imitative* reading, and not enough to logical analysis, to ascertaining the meaning of the words and sentences. Children should be impressed with the fact that the principal object of reading is to obtain the ideas and thoughts of others; and therefore they should early accustom themselves to ascertaining the meaning of what they read, that no word, no sentence may be passed over without being understood. Let me say that the dictionary should be the almost constant companion of the pupils of our grammar and high schools. Would you neglect the elocutionary side of the subject? I am asked. By no means. No one places a higher value on elocution, on the beautiful rendering of the reading lesson, than I do; but I insist that it is the duty of the teacher to see that the passage is thoroughly understood by the pupils before she attempts to drill them in the elocution.

Another mistake is to be found in the fact that the almost universal tendency in this country, of late years, has been to crowd too much into the high-school course, by putting in subjects which properly belong to colleges and universities. To attempt, as I said in one of my annual reports, to make the high school a substitute for the college and university, must result in failure. The pupils are too young. They have not the maturity of mind required to comprehend thoroughly such a course of study. In my opinion, much of the present opposition to the high-school system is directly due to this cause. To remedy the defects and make the high schools more efficient and popular, there should be a more judicious selection of studies, and much more time should be given to English literature and to composition. At least one lesson per day should be devoted to these subjects throughout the entire course.

GEMS OF LITERATURE. — Morality, if under this head may be placed honesty, patriotism, and good-will to men, ought to come within the scope of school work; for morality in this sense is the dearest element of the good citizen, and the good citizen is the prime object of education. Our country has less lack of intelligence than of public honesty and private fair dealing, less lack of knowledge than of inclination towards a noble life; which facts show that something in the present order of society is either fundamentally wrong or deplorably weak. But where shall we seek a remedy? when and how begin to mend? The subject of moral progress does not belong solely to the religious world. It is not altogether a matter of religion; it is a matter of that good sense, that idea of public utility which considers the welfare of the immediate present, and looks with a benevolent eye to an improved manhood in the future. For morality is almost as beautiful when viewed as a guiding element to man in this world's transactions as it is when viewed as an essential to happiness in the world to come.

We cannot serve the future of this world in a better way than in taking care of the present of the children. It is in our power greatly to elevate the world in morals. We can do this by introducing into our present educational system a factor whose object shall be to give the proper direction to the child's thoughts; to implant in his mind correct conceptions of the world and his place in it, true ideas of his duty to his neighbor and his country and of his relations to the inferior world around him, which, sinking deeper and deeper with each generation, shall eventually supplant evil, and leave a soul worthy of the inspection of gods. "As a man thinketh, so is he." Children should be led to think properly, that they may be enabled to act justly and generously; and it would be far safer both for them and the community if their acts were directed by fixed principles than by sudden and untrustworthy impulses. Now, as it is undeniable that to many the age of maturity does not bring with it those established ideas of right and wrong, those healthy conceptions which characterize the model citizen, I for one feel the necessity for a new feature in education, whose object shall be advancement in a moral way. I consider it our duty to attempt what I have indicated above. We owe it to the pupils, as being our fellow-creatures; to the State, as being essential to that good citizenship which is the first object of free education.

The question is as to the method. My idea, as many of you know, is to make use of the gems of literature.

The literature of the world embodies a universal moral creed. In its fulness here and there may be found the holy teachings of the Bible, in language pleasing to the ear of youth, and in form adapted to his understanding. It inculcates all the substantial teachings of the Scriptures without awakening the suspicion that the private realm of devotional form is to be invaded.

A broad-minded selection of noble passages, though it may not be able to do all we could wish in a moral way, can certainly do much to raise men to a high moral, political, and social plane. It may not make men prayerful, but it can make them respectful and respectable. It may not give them the wisdom of statesmen, but it can make them intelligent voters and fervent patriots. It may not fit them for a future life, but it can do much towards making this one pleasant to themselves and for their fellow-men. It can put a light into their hearts that will illumine many of earth's darkest places.

I believe that gems of literature introduced into our schools, if properly taught, will be able to do these things; partly by their own directive influence on the young mind, but principally as being such a draught upon the fountain of higher literature as shall result in an abiding thirst for noble reading. The right kind of reading will induce the right kind of thinking, and proper thinking will insure correct acting.

What harmony the introduction of literature into our schools assures us! The religious world will get from it all it ever asked or expected from the Bible. The secular world will get from it nothing it could possibly object to. At the shrine of noble thoughts the devotees of all creeds may bow as brothers. Let the public schools be the instrument of forming this common love for the noble and beautiful, and who but will acknowledge they have performed a work of greatest utility to man, and added a thousand-fold to their present value as factors in human progress? Heretofore the boy's education has been no broader than his business expectations; his happiness as a man and his worth as a citizen have not been taken into account. The principles are too narrow for an age that is looking for good men as well as for good accountants and grammarians. They are unnecessarily narrow: they leave, as it were, broad fields of noble soil untilled, and this soil must be tilled to bear fruit. For example, a man cannot be a patriot, except negatively, until he has been led to understand and value patriotism. But on abstract or grand subjects, like patriotism, there is an unwillingness or incapacity in most minds to think. Such minds must be enlarged before patriotism can be anything to them but a barren name; but may not patriotic passages, under a wise teacher, promote the necessary growth? For who, even among the educated, has not felt a tinge of shame at the dulness of his own patriotism on reading Grimké's beautiful lines, "We cannot honor our country with too deep a reverence. We cannot love her with an affection too pure and fervent. We cannot serve her with an energy of purpose or a faithfulness of zeal too steadfast and ardent. And what is our country? It is not the East, with her hills and her valleys, with her countless sails, and the rocky ramparts of her shores. It is not the North, with her thousand villages and her harvest-home, with her frontiers of the lake and the ocean. It is not the West, with her forest-sea and her inland isles, with her luxuriant expanses clothed in the verdant corn, with her beautiful Ohio and her majestic Missouri. Nor is it yet the South, opulent in the mimic snow of her cotton, in the rich plantations of the rustling cane, and in the golden robes of her rice-fields. What are these but the sister families of one greater, better, holier family, — our country?" Or Scott's, beginning, —

"Breathes there a man with soul so dead,
Who never to himself hath said,
'This is my own, my native land'?"

What I have said of patriotism applies to all the elements of great-mindedness.

The practice, therefore, of memorizing the choice thoughts of our best writers should be made a prominent feature of school work. Oliver Wendell Holmes says, "There is no place which an author's thoughts can nestle in so securely as the memory of a school-boy or a school-girl." It is also in accord with the advice of Arthur Helps, who says, "We should lay up in our minds a store of goodly thoughts in well-wrought words, which shall be a living treasure of knowledge always with us, and from which, at various times, and amidst all the shifting of circumstances, we may be sure of drawing some comfort, guidance, and sympathy."

The idea of its introduction is not new in the history of education. In a similar manner the Germans have been long in the habit of training their children in the knowledge and admiration of the literature of their own land. The Arabs, the most civilized nation of the ancient world, taught their young to repeat the undying thoughts of their poets, under the beautiful name of "unstrung pearls."

Plato pictures the boys on long benches in the schools of Greece, receiving moral instruction through learning and reciting the poetry of her classic authors.

For the greater part, the selections for the younger children should consist of entire pieces, and of such as are calculated to develop their emotional natures — the imagination, love of home and parents, kindness to dumb animals, etc. — and to give them correct rules of action. Those for the more advanced pupils should consist principally of brief extracts, containing grand and ennobling thoughts calculated to incite them to higher aspirations in life, to lead them into pure fields of English literature, and to teach them to love and reverence our great authors. In the selection of gems, poetry has the preference, for it inculcates a double beauty, — beauty as thought and beauty as composition. It is more easily committed, and as a rule longer retained. "The taste for harmony, the poetical ear," says Miss Aiken, "if ever acquired, is so almost in infancy. The flow of numbers easily impresses itself on the memory, and is with difficulty erased. By the aid of verse, a store of beautiful imagery and glowing sentiment may be gathered up as the amusement of childhood, which in riper years may beguile the heavy hours of languor, solitude, and sorrow; may enforce sentiments of piety, humility, and tenderness; may soothe the soul to calmness, rouse it to honorable exertions, or fire it with virtuous indignation."

"They who have known what it is," remarks Willmott, in "Pleassure, etc., of Literature," "when afar from books, in solitude, or in travelling, or in intervals of worldly care, to feed on poetical recollections, to recall the sentiments and images which retain by association the charm that early years once gave them, will feel the inestimable value of committing to memory, in the prime of its power, what it will receive and indelibly retain. He who has drunk from the pure springs of intellect in his youth will continue to draw from them in the heat, the burden, and the decline of the day. The corrupted streams of popular entertainment flow by him unregarded."

The great Coleridge says, "Poetry has been to me 'an exceeding great reward.' It has soothed my afflictions; it has multiplied and refined my enjoyments; it has endeared my solitude; and it has given me the habit of wishing to discover the good and beautiful in all that meets and surrounds me."

All the selections should be recited in concert and individually from the platform.

You are aware that years ago it was almost the universal custom for teachers to set apart Friday afternoon for declamation; but the exercise in declamation differed widely from memorizing and reciting gems of thought, which I advocate. Then the pupils were permitted to commit to memory whatever *they* thought best. The result was, that in a majority of cases the selections contained no literary or other merit. They were made more from a desire on the part of the pupil to have something "new," or to create a laugh, than from any other cause. The time spent in committing such pieces was, in my opinion, worse than wasted, for there was nothing in them worth remembering. Their effect was to vitiate the tastes of the pupils for good literature, rather than to give them a love of it. It was not so much what the pupils memorized, as how they declaimed. In short, everything was sacrificed to declamation. In my opinion, declamation, a subject almost entirely neglected in public schools of late years, is a very valuable exercise. Its tendency is to give pupils confidence in themselves; to make them more self-possessed; and above all, to make them better readers. These worthy objects can be better accomplished by reciting "gems" than by declaiming long pieces, as was formerly the custom; for every member, even of an entire class, can recite a short extract within the time of an ordinary recitation, and each learn from hearing the others declaim the same selection. But important as declamation is in itself, it is secondary to the great object I desire to accomplish: viz., storing the minds of our youth with grand and ennobling thoughts, clothed in beautiful language; thoughts that will incite them to noble aspirations in life; thoughts that inculcate virtue, patriotism, love of God, of father, of mother, kindness to dumb animals, and that give correct rules of action.

HOW TO TEACH. — At least one hour per week should be given to this literary work in all the district, grammar, and high schools throughout the country.

In Cincinnati, a part of this time is taken from that assigned to morning exercises, and a part from Friday afternoon. However, this is left to the discretion of the teacher.

I recommend eight lines as a fair amount for each week's work. At this rate the pupils, in passing through the district and grammar schools, would commit 2,560 lines, and in passing through the district, grammar, and high schools, 3,840 lines, which is equivalent in amount to one hundred and twenty-eight pages of one of our Fifth Readers.

Important as it is, it is not enough that the pupils simply memorize the selections. Each one of them should be made the subject of a lesson to be given by the teacher.

For example, in presenting to the pupils for memorizing this beautiful passage from Whittier's "Snow Bound,"—

"Alas for him who never sees
The stars shine through his cypress-trees!
Who, hopeless, lays his dead away,
Nor looks to see the breaking day
Across the mournful marbles play!
Who hath not learned in hours of faith
  The truth, to flesh and sense unknown,
That Life is ever lord of Death,
  And Love can never lose its own,"—

the teacher should give a talk on the immortality of the soul, on the fond anticipation of meeting our dear ones beyond the grave, on the deplorable condition of him who does not believe in the future life. She should speak of the beauties of "Snow Bound," the greatest American idyl, and give the connection in which these lines occur; should bring out the meaning of "the stars shine through his cypress-trees" and every other expression: in brief, should see that the pupils thoroughly understand every word and phrase; that they give the substance of the passage in their own language and make the proper application of the same, before requiring them to commit it to memory. But above all, she should endeavor to imbue their minds with the spirit of the extract.

Again, suppose a lesson is to be given on the protection of insect-destroying birds, — and such lessons should be given in every schoolhouse in the land: how could it be more impressively done than by telling the story of the "Birds of Killingworth," by Longfellow, and drawing from it the lesson intended to be conveyed by the author, and then fixing that lesson in the minds of the pupils by having them memorize (after thorough preparation) the following noble lines of the Preceptor?—

"Do you ne'er think what wondrous beings these?
  Do you ne'er think who made them, and who taught
The dialect they speak, where melodies
  Alone are the interpreters of thought?
Whose household words are songs in many keys,
  Sweeter than instrument of man e'er caught?
Whose habitations in the tree-tops even
Are half-way houses on the road to heaven!
Think every morning when the sun peeps through
  The dim leaf-latticed windows of the grove,
How jubilant the happy birds renew
  Their old melodious madrigals of love!
And when you think of this, remember too
'T is always morning somewhere, and above
The awakening continents, from shore to shore,
Somewhere the birds are singing evermore."

Yes, in this beautiful world that God has made for us,

> "'T is always morning somewhere, and above
> The awakening continents, from shore to shore,
> Somewhere the birds are singing evermore."

What an opportunity is given in this work for our teachers to impart moral instruction; to cultivate the emotional nature of children; to inspire them with a love of the noble, the good, and the true! Such instruction must bear beautiful fruits.

After the selection has been thoroughly memorized, the attention of the teacher should be given to the elocution, — to the beautiful delivery of the same. This can be well done by concert drill. The concert should be supplemented by individual recitation. If, however, for want of time, any part of the work indicated above has to be neglected, it should be the individual recitation. As I said before, declamation is secondary to the committal to memory of literary gems.

As the value of these extracts to one in after life will depend in no small degree upon the accuracy with which they are memorized in youth, the teacher should see that they are committed to memory, word for word. In order to do this, time should be taken from the grammar or language lessons for the pupils to write the extracts from memory. This would also be an excellent practical exercise in capitalization, punctuation, and spelling.

Let me say here, that this literary work trains the memory: there is perhaps no weaker point in the school system of our country than the frequent neglect of this absolute necessity in child culture. The memory needs as much strengthening by exercise as the muscles of the arm; but it should be employed, as here, in storing the mind with what is *worth* remembering.

It also enriches the vocabulary of the pupils by giving them many new words and beautiful combinations, whereby they will obtain a better command over the English language.

The teachers should give sketches of the lives and writings of the best and most worthy authors, at least to all the pupils above the fourth year of school, and encourage them to find out for themselves interesting facts concerning these authors and their works, and to reproduce them either in compositions or in oral talks before their classmates, as I have already recommended in connection with the lessons on history. I also recommend that the teacher, or a pupil under her advice, read the entire piece, when appropriate, from which the extract is taken, or some other selection from the same author: as one of "Timothy Titcomb's" letters, by J. G. Holland; a story from Hawthorne's "Wonder Book"; a selection from "The Autocrat of the Breakfast-Table," etc.

The name of the author, when known (I require the full name), should be given at the close of each reading or recitation, in order to associate in the minds of the children the author's name with the selection.

In connection with this moral and literary training, and as a part of it, let me urge the importance of celebrating the birthdays of distinguished and worthy authors.

These celebrations may consist of compositions on the life of the writer, of the recitation of gems by entire classes or grades, of declamation, of reading, of singing, and of appropriate talks by teachers and friends of the schools.

Authorial-birthday celebrations interest the pupils in the writer and his works as nothing else can. They educate the whole community. The celebration of the birthdays of Whittier and Longfellow and Holmes and the Cary sisters and others has caused an increased demand for their books; and *every good book that goes into a family is a moral and educational force.* I repeat, *every good book that goes into a family is a moral and educational force.* It has not only multiplied the number of their readers, but that of many other of the great authors in American and English literature.

Longfellow and Whittier and Holmes, names unknown to the children of Cincinnati three years ago, are now as familiar to them as those of their own playmates. Hereafter they will be looked upon by the youth of that city not only as great and noble writers, but as dear old friends whom they fondly love. To me, this attachment of the children to those great and pure men is a touching and pleasing result of the celebrations.

These celebrations, from year to year, should include not only poets and prose writers, but also great statesmen and distinguished scientists and inventors.

> " The poets who in song translate
>   Emotions they alone have read,
> The patriots stern, who challenge fate,
>   And walk with more than mailed tread,
> The sages who the truth distil, —
>   Let these the child love if he will."
>
> JOSEPH W. MILLER.

But we should celebrate those only who have led pure and noble lives, whose moral character and private worth will call forth the admiration of the children and set them examples worthy of imitation.

Two or three celebrations a year are all the best interests of our schools demand, but these should be made as grand and impressive as possible; for the greater the interest that is created in the author and his writings, the better it will be for the pupils. After the birthday of an author has been celebrated, it should be appropriately observed from year to year, by devoting from fifteen minutes to half an hour to the recitation of gem-thoughts, and to review talks on his life and writings.

Having completed my suggestions on the methods of instruction, and the scope of this moral literary work, I desire to call your attention for a few minutes more fully to the good that will be accomplished by its general introduction into our schools.

DIME-NOVEL READING. — One of the greatest powers for evil is the low and degrading writings our boys and girls are reading. Even educators, I fear, are not fully aroused to the terrible influence this reading is exerting upon the lives and characters of the young.

Some three years ago, in a lecture on "Fiction," before a Boston audience, the late Mr. Fields said that he visited the Pomeroy boy in prison, a few days previous, and asked him if he had ever read much. "Yes," replied the boy, "I have read a great deal." — "Well, what have you read?" — "Principally dime novels." — "What novel did you like best?" — "Buffalo Bill, because it is full of murders and pictures of murders." Doubtless this boy is naturally depraved, but the immediate cause of his committing his horrible acts was the class of reading in which he indulged. A year or two ago, a number of lads from wealthy and refined families of New York City, through the degrading influence of dime-novel reading, organized themselves into a band of burglars. Last year two youths murdered an old gentleman in Ohio, from the same cause. How frequently we read in the daily papers of boys running away from home with cards, revolvers, and dime novels in their pockets!

Yet, compared to the vast numbers of our youth who are demoralized by pernicious reading, the cases that are reported in public print are the exceptions. The influence of this reading is seen in the slang language in which our youth indulge; in their disrespect for parental authority; in their treatment of the aged; in the wrong ideas of life which they entertain; and in the general spirit of insubordination.

Let us look at the circumstances in which our youth are placed in regard to literature.

At the homes of a large part of them there is scarcely a book, except the text-books of the children themselves. At the homes of a majority of those remaining may be found a few books upon the parlor table, which are usually considered by the parent as too nice for the children to read. It is safe to say that very few indeed of our youth have access to a good home library. That child who is trained at home to a love of reading good books is the exception. Is it any wonder, then, that our youth yield to the temptation to read the worst kind of story papers and novels, which are everywhere thrown around them? In addition to other enticements, we find near all the large school buildings of our cities, shops which keep, besides pens, pencils, and school-books, a large assortment of trashy story papers and novels. What a comment on the public schools! The venders of these papers place those having pictures of murders and Indian outrages, etc., in the windows. The children, attracted by these pictures, buy the papers and read the stories. They soon become intensely interested in the stories and in the slang language in which they are written. The boys and girls buy novels of the same or of a worse tendency for from five to ten cents. These are purchased and devoured, and thus by degrees is formed the habit of reading this pernicious class of writings. The children are not to blame. There is nothing in their home surroundings to counteract these evil tendencies. The schools have been standing by, saying, "Don't touch, don't touch," but doing nothing to interest the pupils in good reading.

Knowing from experience, as I do, that it is in the power of the schools to control almost entirely the reading of the pupils, and to implant in them correct literary tastes, I appeal to boards of education, to superintendents and teachers, to take immediate and decisive steps to make this literary training in all the grades a prominent feature of school work; as the only effectual way to keep the youth of our country from reading the terrible dime novel is to *interest them* in the writings of good authors, and this must be done, if at all, by the schools.

LITERATURE AS A DISTINCT BRANCH. — Under the present system, the study of literature as a distinct branch of education is not attempted till the tenth year of school, when but one in twenty is remaining in school; and I will guarantee that former classes in the high schools gathered fewer of the pearls of literature at the completion of their course than is possible with the common-school classes under the plan now in operation in Cincinnati. And it should not be forgotten that the one in twenty that takes the high-school course is the one for whose welfare we need have but little apprehension. We can trust him. It is among the nineteen who fall by the wayside that we shall find subjects for our misgivings. It is here that we must exert ourselves as formers of character and developers of taste.

In other words, if literature has any elevating influences, its fittest field is the common school; for here those influences are most in demand, and here is the single opportunity of reaching a large and especially needy class of pupils.

But let us look at the matter in another light. Pupils have heretofore entered upon the study of literature in the high schools with almost no previous knowledge of literary character or development of literary taste. The result of gem-learning, in addition to its grand object, the ennobling of the mind, will be to lay the foundation for deeper literary culture in advanced pupils, — to activate the mind in this direction, and so store it with knowledge that the commencement of this branch of education in the high schools shall be further advanced than its termination has been heretofore.

THE CHILDREN INTERESTED IN GEM-LEARNING. — I have never known anything in school work that interested children more than this. The interest, too, is not confined to the upper grades, but pervades all the classes, from the first year of school through the high school.

Children love to commit to memory beautiful selections, and recite them at home and at school. They love to hear of the lives and writings of good authors, and to talk about them to their fathers and mothers.

Again, these literary exercises relieve the monotony of school. Their tendency is to give the pupils a love of school, and therefore to secure a more regular and larger attendance. They do much to make the school strong with the people, an object that every teacher should endeavor to accomplish.

In conclusion, I desire to call your attention to the remarks of Mrs. Elizabeth Gale, of Mt. Healthy, Ohio, as they present the subject of memorizing selections in another light. Mrs. Gale is the aunt of J. G. Holland. "Dear old aunt," writes Dr. Holland, "she is the only living link that binds me to the last generation." Mrs. Gale, though ninety-three years of age on the 17th of last December, — Whittier's birthday, — is bright and intelligent.

It was one of the happiest moments of my life when that dear old lady, then in her ninety-third year, holding in her hand a pamphlet of selections I had sent her, said to me, "Mr. Peaslee, you don't know how much good you are doing by introducing these selections into the schools. You don't know how the children will appreciate them when they are old; what a source of consolation they will be to them then; how they will love to say them over and over again. Why," said she, "thinking over and repeating the little pieces I learned in childhood is one of the greatest comforts left me now."

She then recited a number of selections. Among them was one entitled "To my Watch," which she learned at home when a child only four years of age, from hearing her brothers recite it. I had the piece written from her dictation, and printed, with the change, suggested by Dr. Holland, of a single word.

TO MY WATCH.

Little monitor, by thee
Let me learn what I should be;
I 'll learn the round of life to fill,
Useful and progressive still.

Thou canst gentle hints impart
How to regulate the heart;
When I wind thee up at night,
Mark each fault and set it right;
Let me search my bosom, too,
And my daily thoughts review.

I 'll mark the movements of my mind,
Nor be easy when I find
Latent errors rise to view,
Till all be regular and true.

This incident needs no comment from me. It tells, more strongly than any words of my own, of how wonderfully the memory retains little pieces committed to its precious care in early childhood.

Yes, these beautiful selections will be remembered and will influence our children for good when the technicalities of their grammar, the abstrusities of their arithmetic, and the obscure locations of their geographies are forgotten.

THE EDUCATION OF AGRICULTURISTS.

ANNIE TOLMAN SMITH.

In an address before the South London Workingmen's College, delivered in 1868, Mr. Huxley said, "Nobody outside the agricultural interest now dares to say that education is a bad thing." He was speaking for England, where the idea of popular education was merely in its inception, and where special training for agriculturists was confined to the Royal Agricultural College at Cirencester.

Had he been addressing Americans from the American standpoint, he would hardly have found warrant for the discrimination against the agricultural class. It is true that thirteen years since, a graphic representation of illiteracy in our country showed vast numbers of adults, in the great farming and plantation States, who could not read and write; but the figures were equally startling for certain manufacturing districts, and it does not appear in either case that the results had been brought about by lack of interest in education. For evidence to the contrary, we can point to the Act entitled "An Act donating Public Lands to the several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts," which passed Congress June 17, 1862, received the signature of President Lincoln on the 2d of July following, and whose provisions have become almost as familiar as the Declaration of Independence or the Constitution. At the time of its passage, the bill did not excite very animated debate, nor elicit any speech of moment save from Hon. Justin S. Morrill, of Vermont; but of the whole number of votes — viz., 32 against 7 in the Senate, and 90 against 25 in the House — by which the bill passed, a fair proportion undoubtedly represented an intelligent understanding of its provisions, and an honest conviction of its importance, — an understanding and a conviction not confined to members of Congress, but shared by their constituencies, who had not entirely lost sight of the purposes contemplated in the Act since the unexpected veto of a similar bill by President Buchanan in 1858. Moreover, at the time the bill was passed, a number of States — notably Pennsylvania, New York, Michigan, Maryland, and Iowa — had already started colleges on the principles it embodied. So far, then, as interest in education for the agricultural class is concerned, the United States had made a creditable record as early as 1862.

On the other hand, all notions of the specific means, the methods and curriculum, by which a new class of schools should meet a hitherto unsatisfied demand, were at that date exceedingly crude and vague. They found, perhaps, their best expression in the speech of Senator Morrill, and he was definite only upon two points; namely, the relation between what he called our "go-ahead system of farming" and the agricultural decline which was taking place in our country, and the evidence afforded by European precedents that a corrective might be found in "institutions accessible to all, but especially to the sons of toil," where, among other advantages, agriculture was to "look for troops of earnest friends studying its familiar and recondite economies."

As might have been expected, the proposed institutions came rapidly into existence; four colleges created prior to the land grant received its benefits; between 1862 and 1870 twenty-two new schools or departments of colleges and universities were established, and at the present date the entire number endowed from this source is forty-six. Forty-four of this class, and the Bussey Institution (Harvard University) not so endowed, make special provision for the training of agriculturists.

The greater number of these institutions entered upon a confused and uncertain existence: weighted with all the pretensions of colleges, they were virtually inferior to high schools; obligated by the conditions of their endowment to develop a new education, they had no better method than a poor make-shift of adjustments on the basis of classical schools. All familiar with their internal history know that for years many of them were vainly endeavoring to adapt advanced studies to crude country boys, working up potato patches and corn-hills as a specialty; the by-word of scholarly institutions whose honors they aped; the target of public censors, who saw in their operations only a desperate struggle to keep up appearances and pocket a dowry. It was only a few far-sighted friends who recognized in such dogged persistence the guaranty of future power.

The inquiry made by Congress in 1874 into the condition and management of the new schools forms a turning-point in their history. This is due in part to the fact that the inquiries themselves afforded practical suggestions for the organization of departments of agriculture and the mechanic arts, and in part to the effect produced by the reports of a few institutions in which such departments were already in successful operation. With these few exceptions, all that the inquiry developed concerning the relation of the institutions to agriculture was that the majority of their pupils came from farms and returned thither, and that by an elastic interpretation of the phrase, twenty-one "experimental farms" could be reported. Since 1874 there has been a steady specialization toward agriculture manifested in the arrangement of studies, in the use of laboratories and museums, in the distinction between experimental stations, practice farms, and gardens, and in the training in different branches of rural industry, as agriculture, horticulture, the care of forests, of stock, of poultry, bees, the dairy, etc.

The "branches of learning" that are related to agriculture have been determined with singular unanimity, though without formal conference, by about thirty of the institutions; but along with the marked agreement in this and other general tendencies, there are great differences in the practical work accomplished. It is not my purpose to enter upon comparisons, but simply to call attention to certain facts in the record of the leading colleges of the class, which illustrate their growing importance to our productive industries.

It is asserted that by the application of principles discovered in the recent progress of meteorology, vegetable physiology, and chemistry, most of the details of farm industry are removed from the region of doubt. In a meeting of the Massachusetts Board of Agriculture, Dr. James R. Nichols used this language: "Coincident with the birth of a 'new chemistry,' and dependent upon it to a great extent, we have a new agriculture." In the light of such utterances, the day seems not far distant when the fame of the chair of agricultural chemistry may be such a power in an institution as philosophy once was under an Abelard, or the classics under an Erasmus, or as Roman history is to-day under Mommsen; for the utilities have a name to live as truly as the humanities.

In this department of chemistry, we have some beginnings of which we are justly proud. The names of Norton, Porter, and Johnson, of the Sheffield Scientific School, come readily to mind. The researches of Prof. Johnson, in the single matter of fertilizers, have been, it is asserted, the means of saving hundreds of thousands of dollars to the State; while his volumes "How Crops Grow" and "How Crops Feed" are not only widely used as text-books in the United States, but have been republished in England, translated into German with a highly commendatory introduction by Baron von Liebig, and translated also into Russian for the improvement of the farmers of Russia. Prof. Charles A. Goessman, who occupies the corresponding chair in the Massachusetts Agricultural Society, is quite as well known through the published accounts of his investigations; and the fame of the Michigan Agricultural College is largely attributed to Dr. R. C. Kedzie, who has been professor of chemistry since 1863. Among the resources reported by the agricultural colleges there are upwards of forty farms and gardens. The relation which these sustain to the college training is not very well understood, probably because it is not yet clearly defined in the majority of the institutions.

Out of a multiplicity of notions and endeavors, two ideas are taking shape, which are well represented in the Michigan Agricultural College and the Illinois Industrial University; and yet one should hesitate to make positive discrimination between methods which continually overlap each other. It were perhaps better to say that circumstances have developed manual labor as a means of education in the first-named institution, and in the second have caused the farm to be used as a means of vitalizing instruction through the illustration it affords of processes and results.

With reference to this feature of the Michigan College, President Abbot says: —

"The attempt is made throughout the course to give an intellectual character to manual labor, to make it illustrative of principles, and suggestive of such inquiries as become a mind awake to the beauties of the natural world, and the grandeur of the forces and the laws that explain the operations of nature. Labor may have added to it this intellectual dignity, but it is necessary for purposes of moral discipline that this work should not lose it character of hard labor. The labor is not, therefore, like the unpaid practice of a chemical student in a laboratory, nor of a young machinist in a technological school. The college labor is continuous for four years, is applied where hired hands would otherwise be employed, and is largely of the sort which the home education of the student has prepared him to do well. He is usually qualified to earn wages when he comes to us. It would be unfair to impose so much hard labor without recompense, although the educational purposes of the institution make it advisable to require work of all its students."

This is a very different case from that of the Illinois University, where the farm work by students is occasional and optional.

In view of the recent international excitement over our stock exportations, it is unnecessary to emphasize the importance of veterinary science in our country. The agricultural colleges in general are taking hold of this subject with so much energy that it would be invidious to particularize.

The museums of natural products, mineralogy, geology, and zoölogy, which are being formed in the colleges, will prove invaluable in the promotion of physical geography and kindred branches of science.

Humboldt, speaking of Pliny's purpose in the "Historia Naturalis," says: "A grand and single image floated before the mind of the intellectual author; but suffering his attention to be distracted by specialties, and wanting the living contemplation of nature, he was unable to hold fast this image." Again says Humboldt: "If art may be said to dwell within the magic circle of the imagination, the extension of knowledge, on the other hand, especially depends on contact with the external world."

These museums afford the means for just this "living contemplation of nature," this "contact with the external world." A few of these collections are already as complete for the flora, fauna, etc., of their respective States as those of Oxford University are for England.

The relations springing up between the agricultural colleges and various State associations for the promotion of agricultural interests are among the noticeable evidences of the public appreciation of the worth of the colleges. As Michigan led in the establishment of an agricultural college, so does she promise to lead in this union of forces. At a united meeting of the State Board of Agriculture, the executive committee of the State Agricultural Society, and officers of the State Grange, held at the College, June 25, 1878, the following resolutions were adopted: —

"*Resolved*, That in the opinion of the State Agricultural Society, the end and aims of this Society, of the Agricultural College, and the State Grange are the same, — that of educating and elevating the farming class.

"*Resolved*, That it is eminently wise that there be an annual meeting of the State Agricultural Society at the College, for the purpose of examining the work done by the College, and of aiding the Faculty by advice and criticising them when necessary.

"*Resolved*, That the members of the State Agricultural Society commend the work done by the College, and that they believe it to be exerting a great and good influence in behalf of agriculture.

"*Resolved*, That we learn with pleasure that more than fifty per cent of the graduates are farmers, and that we believe the influence exerted by these graduates is a hopeful promise for the College and for the elevation of the farmer."

The spirit herein expressed has been working with excellent effect ever since that date.

The shifting limits of certain staple crops warn us of the necessity of such experiments as those by which Gilbert and Lawes at Rothamsted, England, and many scientists at the experimental stations in

Germany, are bringing science to bear upon the food problems of the day. Two experimental stations have already been established in our country, — namely, in Connecticut and North Carolina. The work is carried on by field and laboratory experiments, and demands the utmost skill, precision, and intelligence; in short, it should be intrusted to scientific experts or should be left undone. The reasons for associating such stations with the colleges are obvious. This was done in Connecticut by the provision that one member of the board of control should be appointed by the governing board of the Sheffield Scientific School. Rooms and apparatus for the chemical and analytical work of the station were provided by the Sheffield School, and Prof. S. W. Johnson, who held the chair of agricultural chemistry, was elected director of the station. Substantially the same relations exist in North Carolina between the experiment station and the University: the director of the station is elected by the Board of Agriculture and approved by the trustees of the University, and he does his analytic work in one of the University laboratories.

Other public enterprises, especially State surveys, are gradually coming under the supervision of the colleges, though this is due as much to their general character as schools of science as to the influence of their agricultural departments.

Many inquiries have been raised concerning the relative status of agricultural education in the United States and in European countries. It is always difficult to answer such inquiries satisfactorily, the conditions of industry and population differ so widely on the two sides of the Atlantic. We number 45 schools to a population of 50,152,100. Austria, with a population of 21,752,000, has, besides the Imperial Agricultural College of Vienna, 69 day and 174 evening agricultural schools; besides these, agriculture is taught in 2,128 elementary schools, arboriculture in 4,034, bee culture in 1,486, and silk culture in 862. In connection with the elementary schools there are 3,215 orchards and 4,032 gardens, and each of the 69 day schools has a farm attached. Germany has at present over 150 schools of agriculture, horticulture, etc., each with farm and garden. Prussia had, in 1876, 6 higher agricultural academies, 29 schools of arboriculture and vine culture, and 6 schools of forestry having agricultural departments.

The foreign reports on this subject indicate better gradations in agricultural education and much more attention to the elementary stages than is found with us. The latter feature, however, is sure to develop here if the schools already established are to maintain a college grade. The subjects of instruction are also more carefully specialized in European countries; thus there are separate schools for horticulture, bee culture, grape culture, silk culture, the care of sheep, etc. In the courses of study, book-keeping, political and rural economy, taxation, sanitation, and rural law are made very prominent; all of which, and especially the two last, ought to receive more attention in our schools.

These facts are distinctly brought out in the foreign reports; and I am assured by a gentleman intimately acquainted with the internal operation of the foreign schools, that the reality of their practical work far surpasses the official record. The first agricultural station in Germany was established at Möckern, Saxony, in 1852; in 1877 the number was 55. It is authoritatively stated that agriculture has greatly improved in Germany since their foundation. It seems somewhat remarkable that Ireland should be the only part of the United Kingdom having a regular system of agricultural education.

THE INDUCTIVE ELEMENT IN THE SCIENCE OF EDUCATION.

BY J. A. REINHART, M. A., NEW YORK.

THE general truths or principles on which *education* proceeds, when duly classified and systematized, make up what we call the science of education. It is to be observed, in the first place, that this body of generally accepted truths is obtained by that method of reasoning called *a priori*, or *deductive*. Thus, from the broad generalizations of mental philosophy we may in a deductive manner derive the more special truths of educational science; and from these last-mentioned principles we obtain by the same process of reasoning the particular statements which express the method of procedure in any special process, kind, or matter of teaching. To illustrate from Bain's "Mental Science," I have this comprehensive statement: "The primary attributes of intellect are: (1) Consciousness of Difference; (2) Consciousness of Agreement; and (3) Retentiveness. Every properly intellectual function involves one or more of these attributes and nothing else." From this generalization we may immediately derive certain subordinate and more special truths in our science. From the above, for instance, it follows: (*a*) "That all knowledge finally resolves itself into differences and agreements; and further, (*b*) "That the beginning of knowledge or ideas is the discrimination of one thing from another." And from these follow many particular truths, which regulate the teaching processes in various kinds of subject-matter, both primary and advanced. One more example of the deductive method of establishing the principles of educational science: let it be admitted that "Natural education is the model of *formal* education." From this general principle we may obtain other principles of more special application: namely, (*a*) That the learner is to actualize himself through his own efforts; and (*b*) That the teacher learns from the child how to teach him. And so might be enumerated many educational maxims and principles, which rest as truths in the instructor's mind, simply because he has admitted the general truth from which they are derived.

There can be no question as to the importance to the student of educational science of this method of inquiry. Indeed, in Rosenkranz's definition of pedagogics, the scope of the inquiry is thus indicated: "It [pedagogics] busies itself with developing *a priori* [deductively] the idea of education in the universality and necessity of that idea." By this method, the laborious generalizations of psychology and its associated sciences are all laid under tribute by him who seeks to develop in due form the principles of his science.

But what is especially to be emphasized in the present essay is that besides the deductive or *a priori* element in the science of education, there is another process, an *inductive* method of procedure, which — recognizing the teacher as a man of science, as an observer, investigator, and generalizer of school-room facts, of all the varied phenomena of natural and formal education — serves as co-ordinate with the deductive method in originating and verifying the principles of educational science; and which may perhaps be used in lines of inquiry to which the *a priori* method is not applicable, and thus be instrumental in establishing educational principles not otherwise to be obtained. Induction is defined by Jevons as that process "by which general truths are ascertained from the collection and examination of particular facts; . . . it is engaged in detecting all the general truths that may be asserted concerning the numberless and very diverse events that take place in the natural world around us." The limitation in this quotation, of the application of the inductive process to the phenomena of the outward world, is by no means necessary, or even generally admitted; for as Dr. McCosh remarks, "It has often been shown that the method of induction admits, *mutatis mutandis*, of an application to the study of the human mind."

Now, in what light, from this point of view, does the teacher as a student of educational science reveal himself to us?

First, as an observer, a *scientific observer*. He may justly take to himself the noble words of Bacon: "Man, the servant and interpreter of nature, can do and understand as much as he has observed concerning the order of nature in outward things or in the mind; more he can neither know nor do." There is a reign of law in the realm of mind as well as in the world external. In the domain of educational processes and results, as elsewhere, are the inexorable links of cause and effect. If a pupil learns, he learns in obedience to laws which regulate all his mental processes; if he fails to learn, to acquire power over the subject-matter of his attention, there is a cause for this phenomenon, and the teacher is the vigilant observer of this cause: and thus on through the whole range of experiences. That teacher who is a real student of his science should collect and record his observations, even as physicians who report the records of special cases.

Secondly, the teacher is an investigator, an experimentalist. It has been observed by Sir John Herschel that in those departments of physical inquiry "where the phenomena are beyond our control, or into which *experimental inquiry*, from other causes, has not been carried, the progress of knowledge has been slow, uncertain, and irregular."

Now, it may here be argued that the phenomena are to a large extent beyond control; that the canons of the inductive philosophy cannot with success be applied to the investigation of such vague masses of results as fall under the teacher's eye. There is certainly, however, a reasonable doubt of this until in a truly scientific way it shall be tried. And besides, *some* judgment must of necessity be made concerning this same "vague mass of phenomena" attendant upon educational processes; whether or not the generalizations are sound or the reverse will depend largely upon the method of investigation. Prof. Bain, indicating a particular line of investigation, says, "All improvement in the art of teaching depends upon the attention we give to the various circumstances that facilitate acquirement, or lessen the number of impressions for a given effect." As a scientific investigator of school-room facts, it behooves the teacher to realize the limitations of his own proper activity. He determines simply the occasion and subject-matter of the learner's activity; "nature working within accomplishes the rest," while he, as the servant of nature, interprets the result.

Third, continuing to apply the inductive method to the study of this science, the next step is that of inference, of generalization. Having collected his facts and registered his experiences, the student now proceeds to derive from these particular facts the general truths which they may warrant.

If now it be inquired in what other particular cases the method of induction may be applied, and what new truth if any may thereby be discovered, we may consider the following:—

We may by the method of induction verify the general truths which we have before arrived at in our *a priori* investigations, and may thus possess ourselves *anew* of the principles of our chosen science, and gain additional authority to assert its existence against fundamental objections. In particular subjects we may venture on carefully considered experiments. For example, let any given subject be presented on this principle, "That the mind should be impressed with the idea before it takes cognizance of the sign which represents it"; or on this, "That abstract rules should never come before the examples to which they refer": meanwhile noting closely the results, and using all the safeguards which experience has found necessary in the application of the method of induction. Is it not evident that the teacher will soon be abundantly able to confirm or overthrow the above-mentioned principles?

As indicating some lines of inquiry in which the method of induction would seem to have peculiar advantages, might be mentioned *oral teaching*, and what is loosely denominated the *graded system*. The approximate value of oral teaching as contrasted with the method of text-book instruction can perhaps be determined in no other way. I have heard a most interesting account of an extended and careful experiment, in which, for some time, all teaching in certain subjects in a large grammar school was upon the oral method. The object was to contrast the results with those of a previous experiment, in which none of the conditions of the inquiry were *designedly* varied, save that the teaching was by the text-book method. Such an investigation, under most carefully considered circumstances, excluding all discoverable sources of error, presents a good illustration of the method which we have been considering.

As illustrating that there are subjects to which the method of induction seems the only one applicable may be noted the "Action of Examinations" in the English universities, as described by Todhunter and others. Competitive examinations have there, as is well known, been carried to great perfection, and with some singular results. I refer to the strikingly different results in the two subjects of physics and mathematics. Prof. Todhunter remarks, "My experience is that nothing is so hopelessly worthless as the products of examination in experimental science." And with reference to the fact that the examinations failed to discover the eminent teachers of experimental science,—in mathematics, on the contrary, he remarks, "Here the leading authorities were almost unanimously first brought to notice by examinations in their respective pursuits." That the mathematical examinations uniformly "selected" the future eminent teachers and leading authorities, while the examinations in experimental science utterly failed so to do, is a generalization not, I think, to be anticipated by any *a priori* reasoning.

Whether the preceding be any just outline of the province of the method of induction in the science of education is perhaps doubtful; but its applicability to such inquiries is unquestionable. In the hands of skilful inquirers, it could not fail to promote accurate knowledge, to develop proper habits of investigation, and to discourage hasty and unscientific generalizations in educational inquiries. It is a sufficient answer to much loose assertion concerning the actual results of educational processes, to reply that if the bold generalizations of some authors were true, we could only be sure that they were so after a more careful observation and collation of the facts, and a more strict application of the principle of ***induction*** to these facts, than has yet been given by any of these inquirers. To all such, and to all students of educational science, may be commended the pithy saying of a French writer, "The fear of generalization is the beginning of wisdom."

GEORGE BARRELL EMERSON.

BY GEN. HENRY K. OLIVER.

OF that large number of persons, mostly teachers, who, in August, 1830, more than half a century since, assembled in the hall of the House of Representatives in Boston, and there formed the American Institute of Instruction, there remain few if any survivors besides myself. All the rest are haloed and hallowed, each by his celestial crown. As the shadowy forms of these noble men flit across my memory, I feel impelled to say with fitting change, as said the surviving bard in Gray's ode, of his dead fellow-bards,—

> "Dear lost companions of my early art,
> Dear as the light that visits these sad eyes,
> Dear as the ruddy drops that warm my heart,
> Ye died,—and naught is left but reverent memories."

Conspicuously eminent among them was our lately deceased friend and associate, George B. Emerson: a man of whom it is my great privilege to be permitted to say, "He was my friend,—faithful and just to me"; and to enjoy the friendship of one's superior is to make a man think the better of himself, and is to be ranked among the best blessings of life.

Of the many readers of EDUCATION, very few could have personally known, and still fewer have even heard much of the subject of this eulogy. The several spheres in which the members of the teacher's profession move are not of the widest extent, nor are they very widely known, although within their limits they may be the most sharply observed of all observers. Those of us, however, to whom Mr. Emerson was known, know not where, among the very great number of men with whom our lengthened lives have brought us into contact, we can select one more highly esteemed, more earnestly reverenced, or more dearly beloved.

Born in the town of Wells, in the State of Maine, in 1797, he was reared under the care of parents of more than ordinary practical common-sense, more than ordinary culture, and of the purest Christian life and influence. His own after-methods of instruction partook largely of his own home-training, where, under the guidance of his father,* his powers of observation were quickened into such intense keenness, that nothing in field, forest, or hill, nothing in ocean, river, lake, or sky, seems to have escaped his research; the application of his own perceptive powers surpassing all the teachings of his schoolmasters.

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* Dr. Samuel Emerson, Harvard College, 1785.

Dying at the ripe age of fourscore and four years of a life wholly devoted to teaching, — or in more exact description, gently falling asleep as doth a weary child, surrounded and soothed by tenderest ministrations, — this truly learned, accomplished, dignified, and beloved teacher was called to the reward of a noble life. Of him, as was said by an unknown writer of the wise and gentle Lloyd, of England, — a master of Westminster in Cowper's time, —

"Gone is the venerated man, — gone to his rest, —
Whose converse with us was a daily feast.
Weep ye who, 'neath his firm yet lenient sway,
Felt the blest guidance of a father's way."

He was the last to leave us of his revered and learned associates, — those apt and triumphant masters that illustrated the teacher's art, achieving and meriting highest renown and most enduring and earnest gratitude, and whose successful career demands of you who are supplementing their work, that you be true to the exacting yet just demands of their and your vocation. Most welcome honor is it to be privileged to eulogize this Bayard among schoolmasters, who for threescore years imparted knowledge to the young people of the best and most thoughtful households of Boston and its vicinage: allured as they were by the fervid zeal, the fidelity and certainty of his teaching, the earnest devotion and frank simplicity of his methods, his innate and thorough apprehension of the demands and the verities of pedagogy, his chivalric confidence in the integrity and honesty of purpose of his pupils, the discreet dignity of his bearing, his true manliness, and the entire perfectness of his Christian character. In the administration of his normal duties there was always a dignified method of control, ennobled by his own dignified self-control, his patient sympathy in dealing with intellectual weaknesses, scantinesses, or neglects, and his patient, sagacious, and discreet firmness in manipulating faults, misdoings, or naughtiness.

He always deemed mere teaching, the imparting of mere school learning, as of inferior consequence to the formation of a single and a noble character, and to the implanting and ripening in the human soul of a clear and vivid conception of the objects for which it was created, with a quickened sense of the true work that was to be done, whenever they whose minds and hearts he was training should enter upon the discharge of the exacting and responsible duties of life and of society. How well and fully he responded to the excellent dignity of his profession, may be illustrated by some of his own acts and sayings. Graduating in 1817, at Harvard, at twenty years of age, a leading man of a class distinguished for an unusual number of eminent men, and serving for a couple of years as a private teacher in Lancaster, Mass., and during the next two years as a tutor in mathematics at Harvard, he was, on its establishment in 1821, appointed, by the unanimous vote of the committee, master of the English High School of Boston. On facing his new pupils, he amazed their almost unbelieving ears by boldly announcing his opposition to corporal punishment, and his determination to ignore it. I say "amazed them," and I say it with due consideration, for all anterior Boston schoolmasters were believers in the rod, and doers therewith: flogging was normal and chronic; the rattan was the baton of the pedagogue, re-enforced at times with the ferule, an instrument now extinct, like the dodo or dinotherium,—the said name "ferule" having been, I conjecture, derived from the Latin word "ferulus," or "little wild beast," as indicative of the ferocity of its assaults. "I will treat you as gentlemen," said he, "and you must so treat me. I will believe what you say, till a discovered lie weakens my faith in you. Never say or do anything to the disadvantage of a fellow-pupil. Rules there must be, and they must be obeyed; but I shall make no rule that I would not more willingly see broken, than I would have one of you violate a feeling of honor towards a fellow-pupil. Never try to surpass another for the mere sake of surpassing. Let all your efforts at surpassing be that each one may surpass himself, trying to be better to-day than he was yesterday, and to be better to-morrow than he is to-day. Help each one his fellow, in his efforts to help himself; by so doing, the highest and most capable will, through life, be best and firmest friends." The lads understood his words and his intents; for boys have an innate, simple, and practical common-sense,—are more unwitting in policy and humbug than many of their elders, and are more readily influenced by a sound and wholesome perception of the truth of such principles as will achieve their permanent good. Well might they have exclaimed, "What is this new doctrine of which thou speakest? for thou bringest certain strange things to our ears, and we would know, therefore, what these words mean." And small wonder had it been, had they, as did the Gentiles to Paul at Lystra, called him Jupiter, and said, "The gods have descended among us," so strange and before unheard was all his language. Better far, however, was his reward: for order, good habits, and the kindliest intercourse were secured; and towards himself, as he gratefully declared in his priceless little address called "Farewell to my Pupils," "there grew an affectionate and abiding confidence and respect" increasing with years, and which were made manifest by the exalted position conceded to him by society and the State, and by the sorrowful tears shed by the unfeigning mourners that flocked to his funeral service.

Rewarded and renowned by his notable success in this High School, his name began to be circulated about the town; and many thoughtful fathers, who were desirous that their girls should have better opportunities for education than their sex had before enjoyed in Boston, deputized the Hon. William Sullivan, one of its most eminent citizens, to approach Mr. Emerson with tentative inducements to relinquish his public position, and assume the work of educating their daughters. Mr. Sullivan urged, against Mr. Emerson's first declinings, that he and his associates "considered the education of girls on such principles as Mr. Emerson had adopted as of much more importance than that of boys; because mothers have almost the entire education of children, and if that highest education, the formation of purest character, were desirable for all children, it must be given mainly by mothers." To the push of these sound arguments Mr. Emerson yielded, believing that he could do more good as a teacher of girls than he could do as a teacher of boys, "in so forming the character of these girls that they would become good daughters and sisters, good neighbors, good wives, and good mothers."

This change occurred in June, 1823; and it was in this school for girls, as it seems to me, that Mr. Emerson achieved his best success, if his work in any of its departments — all being best — be susceptible of contrast. Herein I best knew him, for daughters of my own were favored with his training. Amongst those of us who were then of the guild of teachers, it was the unanimous judgment that he held the foremost position above and beyond us all, — *facile princeps*, — we invariably deferring to his judgment in any discussion upon educational methods, ways, or means. And this leadership and its honors, freely conceded, he bore with such unconsciousness of superiority, such generous gentleness, such unpretentious frankness, such sincere deference to the opinions of those who, all the while, were deferring to him, that we became at once, as it were, partakers of himself, and in full and welcome communion with him. His own remarkable power in teaching well illustrated the thoroughness and exactness of his own knowledge; and he possessed in most abundant measure rare power and aptness in inspiring his pupils with the desire and the ambition of learning. He was also the ever-willing, ever-reliable, ever-judicious, ever-sympathizing friend and counsellor of his fellow-teachers, glorying in his profession, and justly ranking it as a noble and perpetual ministration of good.

I have not spoken directly of his intellectual gifts, nor of his scholarly attainments. His high class rank, in a class itself ranking among the highest that Harvard had trained, demonstrates both these, while prompt readiness and facility in his professional work indicate his assured scholarship. It may be also added that his works on the Geology and the Trees of Massachusetts are recognized as standard works and of prime authority.

His best eulogy is his own pure and spotless life, devoted to assiduous service in every cause worthy of a good man's efforts; for he never ceased to use with quickening vigor all the powers of mind and heart which God had given him, with most earnest gratitude to God for these excellent gifts, and for the will and opportunities of using them for the good of the world in which he lived so long. Commencing in the second decade of our century, he taught for more than fifty years, and then, retiring from his labor, patiently awaited the coming of "the great teacher Death." As he himself said in his eulogy of Agassiz, that prince of teachers, so of him we now say, "We shall no more see his benignant face, nor hear his winning voice. His fascinating eye, his genial smile, his ready sympathy, his generous earnestness, his transparent sincerity, his wise, persuasive words, his alluring natural eloquence," are now all of the past. But there remain his example and the urgent influence of his surpassing work. And as by the living man, we his contemporaries were incited to increased vigor and power in our teaching, so may you our successors, with your better means of imparting knowledge, your better appliances for elucidation, your greater encouragements and growing strength, be quickened by what we testify of his work and that of his associates. Many intelligent, enlightened, and wise men have illustrated the teacher's calling and gained merited renown. Be ye like unto them; so that whoever, in the distant years of the future, shall review your annals, he may be justified in making as honorable a record, and as merited, as has thus been made of him and of his associates.

"A cloud of witnesses around
Hold you in full survey;
Forget the steps already trod,
And onward urge your way."

THE STUDY OF LANGUAGE.

BY D. C. JOHN, A. M., PRINCIPAL NORMAL SCHOOL, MANKATO, MINN.

THE English language has been taught for centuries by the alphabetic method, under the impression that naming the letters of a word in some way or other assists in its pronunciation. The old-time teacher patiently pronounced every word as the pupil spelled it, little dreaming that the philosophy of his entire system began and ended in imitation. With enforced gravity he suppressed the smile that stole over his features when some little boy, emboldened by a picture to strike out for himself, would spell p-i-g "hog," or c-a-t "puss," little suspecting that the boy was making a legitimate use of his faculties, and that *he*, and not the pupil, was the proper object of ridicule.

The discovery that pronunciation is simply the rapid enunciation of the oral elements which constitute a syllable, and that the letters rarely suggest these, is of comparatively recent date. When a boy spells l-e-g, if he retains any impression of the sounds uttered, and attempts to combine them rapidly, he pronounces the word "elegy," and not "leg." It is therefore evident that alphabetic spelling does not lead a pupil *to* the proper pronunciation of English, but away *from* it; and but for the fact that the teacher pronounced every word for us, we should have been unable to read at all. This, however, is learning by imitation, just as the child learns at home. When this method is employed, the school-room does not go a step beyond the nursery. The improved methods which have been introduced during the past fifteen years have awakened great hopes and made flattering promises; none of which, however, have been or ever can be fulfilled. While they have rationalized the process of teaching, and developed brilliant results in the primary grade, they have not materially shortened the time required for the acquisition of the language, nor removed any real difficulty out of the way. In spite of improved methods, in spite of the superior skill and intelligence with which they have been plied, it is still an unwelcome fact that it requires from ten to twelve years to read and write English with a tolerable degree of accuracy. In proportion to opportunities enjoyed, there are not as many good spellers now as there were twenty-five years ago; partly because the common-school course has been overloaded with other studies, and partly because alphabetic spelling has been neglected under the erroneous impression that phonetic spelling is a substitute for it. Our language has increased its vocabulary at least twenty-five per cent "since you and I were boys," and yet our spelling-books are but primers compared with Cobb, Emerson, Towne, and others who initiated us into the mysteries of English orthography. As a consequence, there are more poor spellers among educated people to-day than formerly; and the "Pioneer Press" was right when it complained that it received few communications even from teachers that were not marred by inaccurate orthography. It becomes us, therefore, as candid teachers, to cease the adulation of our methods, and discover, if we can, why they are so brilliant in promise and so meagre in results.

When Johnny enters the primary class, he learns but one sound for each vowel and consonant used, and silent letters are carefully kept out of his reach. A royal road is made for him, and he travels with astonishing rapidity, to the delight of his parents, who charitably permit the new method to share the honors with inherited brains. He soon acquires the power to spell and pronounce new words without assistance, and it looks as though he were going to learn to read in a single term; but after a while, new sounds must be introduced, and that, too, in pretty rapid succession. The same letter represents many sounds, and some none at all: their position determines nothing, and the child becomes bewildered, often hesitating on words which he would have pronounced instantly at the end of his first term. As difficulties multiply on his hands, his progress becomes less and less remarkable, and by the time he reaches the high school he is but little in advance of the boy who entered the academy of thirty years ago. This unsatisfactory outcome must not, however, be charged to faultiness in our methods, but to the language itself. A scientific method can be applied to scientific matter only, and that cannot be found in the language which we write and speak. As it is perfectly anomalous both in its orthography and pronunciation, it must be learned, as it always has been, by the slow, illogical process of imitation and experience. This is proven by the fact that adult foreigners, whose reasoning faculties are fully developed, are constantly led astray by fancied analogies where none exist. If an adult foreigner cannot acquire the language by a scientific process, neither can a child; and the effort to so teach it, however flatteringly it may promise in the outset, must end in disappointment. There are four methods which have successively engaged the attention of teachers:—

1. The alphabetic.

2. The phonetic.
3. The phonic.
4. The word method.

The alphabetic method has already been sufficiently discussed, and needs no further notice here. The phonetic is impracticable, because it would destroy much property, and mar the beauty of an alphabet which has been in use 2,500 years,—an alphabet adequate to express all the sounds of the most cultivated languages of Continental Europe, and which surely ought to be adequate to all the demands of modern English. The phonic method cannot be applied beyond the primary grade without being merged in the phonetic, and therefore fails for the same reason. The word method, except as employed to a very limited extent in first lessons, is an absurdity, and deservedly fell into disrepute almost as soon as it became known. These new methods must therefore not be regarded as a solution of the difficulty in the acquisition of our language, but as protests against the inefficiency of former ones. Facts which have no logical relationship must be learned by experience alone, and the English language is a conglomeration of such facts. This leads to the inquiry, Have we not been trying to reform at the wrong place? is it not our *language* instead of our *method* which needs reforming?

It is a curious question, and one which the historian has not attempted to answer, why it is that while the Roman Empire and Britain were conquered by substantially the same people, scarcely any new sounds appeared in the resultant languages of the former, while in the latter a perfect Babel was developed. The Gothic tribes conquered, but did not destroy the language and civilization of the Roman Empire; the conquered, exceeding the conquerors in numbers, intelligence, and culture, preserved their language and literature, and when fusion commenced, the resultant folk-speech was still Latin in structure and largely in vocabulary. The conquest of Britain, being most effected by freebooters, was of a far sterner and bloodier type. They either put to the sword or enslaved the natives, and suppressed their language as thoroughly as they did their institutions. This lead to the establishment of a pure Gothic language in Britain, which developed a literature centuries before a line was written in the folk-speech of the Continent, with the single exception of Ulfilas' translation of the Bible into Mœso-Gothic, about A. D. 320. Had the Norman conquest been as cruel as the Saxon, the native language would have again ceased, and the speech of England and America would to-day be substantially that which is heard in the streets of Paris. If, on the other hand, the Norman had been the barbarian he was when Rollo founded his dukedom, the Saxon language would have maintained its supremacy after the Conquest, as the Latin had done on the Continent, and our language would be the same as is spoken to-day on the shores of the Baltic and the North Sea. But the Norman and Saxon languages were too nearly balanced at the time of the Conquest for either to yield the supremacy to the other. The Saxon had the better literature; but culture, prestige, and power were on the side of the Norman. When fusion commenced, there was an attempt to preserve the sounds and orthography of both, and plethoric English was the result. The effort to preserve the sounds of both, and even increase them, without enlarging the alphabet, has resulted in the formation of the most difficult and unphonetic language in the entire Gotho-Latin group.

The French is the only one of the family which presents any logical difficulties in pronunciation; and they arise not from any superfluity in its vowel system, but from the somewhat lawless quiescence of final letters. All the others are beautifully phonetic, and the linguist experiences little difficulty in pronunciation, by following analogies which are wellnigh infallible. All this simplicity was lost in the patriotic but unfortunate attempt to preserve too much when the two languages of which English is mainly composed were in process of fusion. But the confusion did not stop here. Slight differences in the quality and length of vowels, physically unavoidable by reason of their association with certain consonants, were raised to the dignity of independent sounds. The so-called *r* sounds received a separate notation, though oddly enough it was applied only when *r* succeeds and not when it precedes the vowel. To my ear, the words *cake* and *rake* differ about as much as *bake* and *bare;* and to be consistent, the distinction should be as carefully marked in the former as in the latter. Again, *sk, sp, ss,* etc., slightly broaden and lengthen the sound of *a*, and the difference is thought worthy of notation, while *o* followed by similar combinations, with precisely the same effect, receives no such attention; the difference between *at* and *ask* is no greater than that between *cot* and *lost.* Compare also *cat* and *glass, dot* and *moss*, and the injustice of our diacritic notation — not to say its absurdity — becomes apparent. If we can pronounce *dot* and *moss* correctly without any notation, we can do the same with *at* and *ask;* and this, if it proves anything, proves that the entire system of superfluous notation should be abandoned at once. Nay, more, this notation is now corrupting our pronunciation. When I hear a teacher insisting that his pupils shall say Gŏd, I think he is either teaching them to swear, or trying to follow the dictionary. Again, the wretched system of equivalents, almost unknown to Norman and Saxon, has expanded our notation until it is wellnigh insuperable both to adult foreigners and native children. Five simple vowels are made to represent no less than twenty-five sounds; and then, as if overworked, no less than twenty-seven diphthongs are employed to relieve them. In consequence of this, we have no less than sixty-three methods of representing about twenty-two vowel sounds; a truly appalling array, and one which may well discourage both teacher and pupil.

The treatment of consonants in the development of our language has been quite as pernicious as that of the vowels. The combination of *g* and *h* in words which originally had but one of these consonants, and the change of long *o* to *ou* or *au*, has given us combinations which are a terror to foreigners, and not unfrequently to natives themselves. The little word *enough*, Saxon *genog*, has undergone no less than eleven metamorphoses, and has not even yet reached a state of permanent felicity. The orthography which sprang up in the formative period of our language, extending from A. D. 1200 to 1600, is the joint product of ignorance and whim; and Lounsbury has well said that the history of English orthography is a history of blunders. Every author followed either his fancy or his dialect, and there was no authoritative standard until the appearance of Dr. Johnson's dictionary. It is therefore clear that our present orthography is entitled to no respect on account of its literary development, and certainly none for its antiquity.

When one hears persons objecting to a reformation in spelling because it would destroy resemblance to originals, he can scarcely repress a smile, and wish they would inform themselves more fully upon the subject. Saxon (or rather Gothic) words contribute only about eight per cent of our present vocabulary; but as they are the words of common life, they constitute about one third of the words employed by writers of the present day. Of this eight per cent, only about three per cent are spelled as they were in the golden age of Saxon literature; all the rest have been corrupted until many of them exhibit only faint traces of their origin. When I see how successfully time-saving machinery has multiplied the possibilities of life in other departments of industry, I am astonished at the passivity which tolerates a language insuperable to foreigners, and one which takes the entire period of minority for natives to acquire.

Not twenty per-cent of educated people can write a dozen pages absolutely free from errors in orthography, and those who did not learn to spell early in life are in almost as hopeless a condition as foreigners. A language which makes memory the sole guide in orthography must either impoverish literature or violate its own rules; for when the reasoning and emotional faculties become sufficiently aroused to be interesting, memory is either partially or wholly suspended. If the writer cannot spell without conscious effort, he cannot do so at all. If we could have a phonetic language, the antagonism between sound and sight would vanish, and spelling would no longer be the art of concealing pronunciation. All efforts to obviate the difficulties by improved methods are lost labor; the language *itself* must be reformed.

REPORT OF THE UNITED STATES COMMISSIONER OF EDUCATION, 1879.

"Of making many books," said the wise man, "there is no end," — doubtless bearing in mind those official volumes in which were recorded all the acts and possessions of King Solomon. And from the days of Solomon until now, the "concurrent judgment of mankind" has favored giving permanent expression to the conditions of national growth, power, and excellence.

The English-speaking people surpass in educational reports; that is, if frequency, fulness, candor, and adaptation to the popular reader are accepted criterions. I imagine an ironical smile at the association of the word "popular" with an official report. Let me not be understood to use it in the sense in which it is sacred to writers of fiction, as Scott, George Eliot, or Richard Grant White; there is an infinitude of distinctions between the art by which they charm the attention, and the art which makes a report readable. Nevertheless, between reports also there are degrees.

Great Britain and her colonies, the United States, and Japan report upon education annually. France issues a decennial; the last, for the decade 1867–1877, was a weighty affair of some 2500 pages, in four large quartos, one of which furnished to Mr. Duruy the material for that review of superior instruction in which he expresses satisfaction that the volume before him has 1000 pages in place of the 800 of its predecessor.

Foreign precedents take great effect with us, and the French decennial seemed likely to raise in some quarters suspicions of an annual, as savoring of centralization or some other anti-American principle, when the French themselves came to the rescue with an annual from the "Minister of Public Instruction and the Fine Arts." It appears under the modest title of "Extracts from the Inspectors-General of Primary Instruction," and maintains, throughout its two octavo volumes of 1134 pages, a fragmentary and tentative character; but it serves to set the approval of the most fastidious people of the earth upon a system of annuals.

The Germans, who are, as we know, the most "fearfully and wonderfully" educated of all peoples, have no periodical system of reports, maintaining a dignified confidence in the certainty that the excellence of their institutions will go "without the saying." On the occasion of a nation's centennial or like notable event, or at the imperial mandate, they issue a public report, special in character and thoroughly exhaustive of the subject treated; meanwhile they never relax in that system of private reports from local to district inspectors, from these to the provincial, and from the provincials to the minister, so indispensable to the conduct of that rigid espionage which has admirers on this side the Atlantic.

Reports on education fall, then, it appears, in two classes: those intended to facilitate the exercise of authority, those intended to convey information. The German reports belong to the first class, the French and English have the characteristics of both, and our national report — the annual of the Commissioner of Education — belongs exclusively to the latter class; it is published in the interests of enlightenment, and serves authority only as truth and knowledge must.

The compilation of an annual is peculiarly difficult in our country. The territory to be covered is rather a startling multiple of any other in which such an endeavor has ever been made, excepting Russia, which published a suspiciously partial annual report on education for three successive years, and then closed the experiment.

Our school population, schools, and teachers outnumber those of the other countries named. Moreover, every time we cross a State boundary, we encounter new social and industrial conditions, with their varying effects upon intelligence; the Territories still further complicate the problem; while to crown all, in the collection of information the Bureau has to depend upon the uncertainties of human option.

This is a point to be especially emphasized. All other nations employ authoritative agencies for the work; with us, it is voluntary. It is true that in our policy an office created is the embodiment of delegated authority; nevertheless, even here, to will and to do are not convertible terms. These were the considerations which excited the high encomium passed by M. Buisson in 1873 upon the presentation of school statistics through the Bureau of Education at Washington. The work has been greatly improved since M. Buisson wrote his report. The methods of inquiry and the plans of presentation adopted have steadily increased the co-operation of school officials, heads of institutions, etc., and the results as set forth in the later reports are allowed by many statisticians to be without parallel in purely voluntary statistical reports.

The Commissioner's latest report, that of 1879, brings the statistical record to January, 1880. The last reports of Great Britain and her colonies reach a somewhat later date, viz., Aug. 31, 1880; but the latter are limited to the elementary schools, and the schools for training teachers in receipt of the government grant, whereas our national report comprises every grade and class of institution in the United States. Although thus comprehensive, the great mass of the information relates to public schools, and the schools endowed with the land grants.

We are not of those who claim everything for education, but it is an undoubted force in human progress; and as we look over the dispassionate record in the volume before us, and note the great inequality of conditions in the different States, we cannot but wonder what the end will show.

Should it be matter of public indifference that in North Carolina the duration of school life is less than one third of the same in Iowa, or one fourth that in New York, or that in all the States south of thirty-nine and one half degrees, save Maryland and Florida, the school period is shorter than in any State farther north?

Duration is, however, of less consequence than efficiency, which is largely a matter of expenditures. Alabama has a school population of 376,649, and an enrolment of 174,585. For Minnesota, the figures are about the same. The school income for Alabama is $387,703, a little over $1 per capita of school population; for Minnesota $1,394,738, or over $5 per capita. The total school expenditure reported for Minnesota is the same as the income; for Alabama it is $377,033. Take any Gulf and Lake States, and the like comparisons hold.

The school income and annual expenditure in several single States — viz., in Massachusetts, New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, and Iowa — are greatly in excess of the sum total of these estimates for the nine States extending along the shore from Maryland to Mexico.

Rhode Island, the smallest State in the Union, has a very large school income in proportion to her population, larger apparently than any other State but Massachusetts.

But money is valuable in the proportion in which it is spent upon the best things. Here the table of values of sites, buildings, etc., would be instructive if we had any means of determining the extent to which the entries signify degrees of excellence in convenience, light, sanitation, etc.; wanting the clew, we turn to teachers' salaries.

As we run down the column, and stop at the thirties and twenties and tens per month, and school years of two, five, and six months at that, we wonder why the teachers do not strike, especially the female teachers. It is the rural districts that keep down the figures. Right here, possibly, is the solution of that vexed problem, the improvement of country schools; it must be based upon better salaries. Institutes and graduating schemes and schedules of study may excite a transient fever, but in the long run the Indian philosophy will assert itself: "Poor pay, poor teach!" Michigan affords illustration: "During 1879 the pay of women teaching in the primary schools did not average more than that received by women employed as domestics. The poor pay resulted in poor teachers, and a general decline in public-school attendance."

North, South, East, and West combine to illustrate the fact that teachers' salaries are not graded in accordance with any known principle. The only invariable rule is never to disturb the social equilibrium by paying a woman more than a man.

While the column of salaries has on the whole rather a depressing influence, other conditions are inspiriting. Low as school funds are in the South, public opinion is much more favorable to the school cause than formerly, and the influences which operated against school provision for the colored people have sensibly diminished.

The efforts undertaken for the improvement of rural schools, especially in the New England and Western States, form a very important part of the year's record. "Cities," as the Commissioner observes, "afford peculiar advantages for progressive action and the systematic conduct of institutions": but since the larger proportion of our youth are in the country schools, we must put into these all that we would have developed in the life of the nation.

The opposition to normal schools in certain quarters has proved quite futile. In 1879 their number was increased by 51, with 195 more instructors and 360 more students. Only three States — viz., Delaware, Florida, and Nevada — had no normal school. The committee appointed by the Assembly of New York in 1878, to inquire into the condition of her normal schools, returned a most favorable report.

The normal schools generally gave increased attention to their speciality, — viz., the theory and art of instruction. It is noticeable also that chairs of pedagogics were reported from the Universities of Missouri, Michigan, and Iowa; didactics was taught by lectures in the University of Wisconsin. The University of Virginia, Vanderbilt and Johns Hopkins Universities contributed in various ways to advance the standard of the teaching profession.

A large proportion of the money distributed from the Peabody Education Fund for the South was applied to the support of teachers' institutes, normal schools, and scholarships for students who gave promise of making capable teachers. In this connection the late Dr. Barnas Sears said in his last report, "It is a pleasing coincidence that at the very time when this Board is turning its chief attention to the improvement of the education given in the public schools, a widespread opinion is simultaneously springing up that the greatest want now existing in the several States is that of well-trained teachers."

The preparation of teachers for the colored schools was recognized as a very important measure, but the work was supported chiefly by the Peabody Education Fund, with contributions from the religious denominations. Of 42 normal schools and departments in the South, engaged in training colored teachers, 12 only received State aid, in a sum amounting in all to $49,820, or about two thirds the amount appropriated by Massachusetts to her six normal schools, and but a trifle over half the city appropriation for the Normal College, New York. Similar contrasts appear in an examination of the status of all other classes of schools, naturally suggesting the inquiry, Are these States doing what they can and ought for the education of the masses?

Secondary instruction and secondary schools are terms of definite meaning in all countries but our own. The French say of schools of this class, "They are the key-stones of a country's whole system of public instruction, they are what fixes and maintains the intellectual level of a people"; but the French speak of schools which "draw dignity and efficiency from their connection with the state," or of private schools, which are surrounded by guaranties of excellence. With us the case is far different; possibly the report does not afford us the means of estimating some of these schools at their true value, but when large allowances have been made, we have still to admit that this grade of instruction is in an entirely unsatisfactory condition.

Under the head of secondary instruction, the report includes public high schools, business colleges, private academic schools, and preparatory departments of colleges, though their statistics are comprised in separate tables.

Thirty-two States and four Territories give information of public high schools or classes. The alternative indicates loose classification, with the more serious lack of uniformity in essentials. This is a natural consequence of the differences between the old, settled communities and those in the formative stages; it is not necessarily a present evil, but it carries the germs of great future evils.

Testimony is not wanting to the superior efficiency of public high schools, where they have been properly supported and developed. From the report of the Illinois Industrial University, the Commissioner quotes as follows: "The high schools of the State are already doing such excellent work, and are multiplying to such an extent, that it is decided that the preparatory department shall be dismissed from the University entirely after June, 1881." There are upwards of one hundred and thirty public high schools in the State of Illinois, twenty-one of which are of such acknowledged excellence that their pupils are received in the University without examination. Any one who will examine into the status of other secondary schools in Illinois, as presented in Tables VI. and VII., can readily determine what would be the disastrous consequences of abolishing free high schools in that State.

From the report of Harvard University is quoted the following: "Of late years the endowed schools and academies have been slowly gaining upon the public schools, in the number of candidates presented and in the quality of the training given to their pupils." The fact that the list of private schools and academies represented by the young men who entered Harvard from 1871 to 1879, inclusive, comprises the very best in the country, gives peculiar significance to this implied condemnation of free-school training.

It is time to cease theorizing about secondary instruction in our country; the record before us, incomplete, unsystematic as it is, affords conclusive evidence that those who would abolish or cripple public high schools would place us below the intellectual plane to which all other civilized nations are aspiring.

The report under consideration gives valuable information concerning the colleges endowed by the national land grant, and schools of science not so endowed. Their organization, conduct, and relation to science and industry are very fully set forth, and the facts confirm the observation of the Commissioner that "the present condition of scientific and technical schools in our country is thus seen to be very promising. A few which have assumed the distinctive title of such institutions have little else to distinguish them from ordinary schools of secondary grade; but a large number have entered with intelligence and enthusiasm upon a special educational work. Already they have excited the people to an appreciation of scientific methods and processes in their application to agriculture and the mechanic arts; and as the results of such methods are more widely known and more fully comprehended, the institutions rise in favor and influence, and the demand for their graduates increases."

The record of superior, like that of secondary instruction, is confused by incongruities of curriculum and nomenclature; a condition, however, of little moment here, since universities and colleges show to the eye of the world according to their true quality. It is perfectly easy to recognize in Table IX. all the institutions through which higher education has a name to live, and to give to all the "conventional illusions" their absolute values.

The report presents a concise review of the college measures adopted during the past six years, in the endeavor to bring college and university instruction into closer relations with the demands of modern life and increasing knowledge; viz., advanced requirements for admission, growth of electives, and the "modern" or "scientific" course, graduate departments, and fellowship systems.

Simultaneous with these changes, and as a logical consequence, the standards of professional schools have advanced, and the character of superior instruction in our country has been still further honored by the restrictions placed upon the conferring of degrees.

We pass over much valuable matter in summaries of education in foreign countries, school taxes, Territorial supervision, and care of public-school lands, to note two subjects of peculiar interest, — special schools and benefactions to education. Under the former, we have information of experiments in industrial training and in the education of dependent children which illustrates abundantly the practical wisdom and humane spirit animating those who determine our school policy. In the table of benefactions, we note with pride that the free offerings of this year are in excess even of those for 1876, when the Centennial provoked such large generosity.

The Commissioner closes his report with a series of recommendations touching the control of public instruction in the Territories, the application of national aid to school interests, and the work of the office, which ought to command hearty support and speedy legislation.

YORKTOWN CENTENNIAL.

October 19, 1781, Lord Cornwallis capitulated at Yorktown to the combined American and French forces under command of Marquis Lafayette and Gen. Washington. It is most befitting to the United States government that the occasion of the anniversary of one hundred years should have been celebrated, for the surrender of Cornwallis decided the war of American Independence. As our country is youthful, vigorous, and only moderately attentive to things which do not immediately concern the present, it is proper to urge upon the American people that they should regard historical objects and events with far greater veneration than they now do. It is a sacred duty of the present generation to teach youth to respect and revere the former history of our country. One of the bulwarks of modern integrity is the character of the fathers who fought for liberty in the Revolutionary War of 1776. France and the United States, meeting at Yorktown in 1881, renew the ties which bind together the two nations, while England rejoices to see liberty established and made permanent. Says a recent issue of the London "Times": "We can afford to feel toward the Americans an envy which is harmless to them, but may be useful to ourselves. They are celebrating the hundredth birthday of their independence. The observance of birthdays belongs to the golden age of the family. Every year they can mark the progress toward the full development of beauty, wit, and power. Every year brings them nearer to the glittering prizes of life, hung upon high for the quickest, strongest, readiest. We have no national birthdays, anniversaries, or centenaries of any kind. We can only carry so many centuries in our minds. We have not room for the later ones. As to the defeat, since there was no other solution of the difficulty, and nothing could convince the Court and its surroundings of their error, we have quite as much reason as the Americans to share in their centenary thanksgiving. Fortunately the Brttish flag was not tarnished. Nor could one ever venture to suggest that Lord Cornwallis surrendered a day before he was obliged to, or that he would have gained by waiting; for there is no doubt that the long-delayed reinforcements, even if they would have done him any good, would not have been able to force the French and American blockade."

FINANCIAL VALUE OF MEMORY.

Judge Devens, of the Supreme Court of Massachusetts, gave a decision recently which brings into view the moneyed value of a good memory. It appears that a gentleman attended Wallack's Theatre in the city of New York, and while witnessing the play committed it to memory. Going to Boston, he reproduced the piece for a theatre in that city. The manager of the theatre in New York began a suit against the manager in Boston, charging him with piracy or infringement of the law of copyright. The Court held that no action could lie in the matter, because the piece had been reproduced from memory; whereas, if it had been transcribed by a short-hand writer, an action could have been maintained. This ruling followed that which was given twenty years ago in the case of Laura Keene against the Boston Museum, for appropriating in the same manner "Our Country Cousins," which she had purchased of Mr. Taylor.

This decision of Judge Devens suggests an economic value of a good memory which is quite independent of that which arises to its possessor because of the relation which this faculty bears to the other activities of the mind. If this action of the court should prove to be a stable principle of jurisprudence, it would constitute a basis upon which to rear a new industry for young men and women. The faculty of memory would rank financially with the power to write a good hand rapidly, or the skill to operate with the feet the pedals of an organ, or the art of tonguing a cornet. A demand would undoubtedly be created soon for the services of adepts who could reproduce from memory, *verbatim et literatim*, plays, conversations, private interviews, business transactions, proceedings of conventions, lectures, verbal or written descriptions of mechanical models which are now protected by law, and any other matters in verbal guise which have a moneyed valuation. The industry would properly be designated that of the Memoriter Expert. The demand upon him would be that he should memorize accurately and in large measures. Educators will accept the results gladly if this decision shall serve to awaken increased attention of the public to the general importance of improving and conserving the powers of memory.

INDUSTRIAL EDUCATION IS AN EVOLUTION.

HISTORICAL investigations are important to no class of professionals more than to educators. The conditions of institutions to-day are resultants of preceding causes; and unless those antecedent influences are patiently laid bare, it is quite impossible to pronounce with any weight either for or against any assumed position. These remarks have been impelled by the way in which many writers of the present time are advocating the admission of industrial education into the public schools in the United States. Technical education in itself is a grand conception; placed out of its proper relations it becomes a deceptive farce. In general terms, a liberal education is intellectual acquirement, and industrial training is physical experience; the one is preparation for a profession, the other is skill for handicraft: to choose the one or the other of these educations is to settle to the serious work of life. Turn now to the social condition of the people of our country. Are occupations hereditary heirlooms that descend from father to son, from mother to daughter, in any place in the United States? Have fathers convictions that if sons learn the art of making baskets, they will follow that business when they become men? Society in this country is far too mobile and unsettled to predict what a boy or a girl will pursue as a business when adult years shall be attained by them.

Social conditions in Europe are very different: they are stratified by time and circumstances; economic conditions are hereditary, and are transmitted from generation to generation with almost the certainty of fate; boys are expected to qualify themselves to carry on the business of the father, and they look forward to this as their place in life; mothers live to see their daughters succeed to homes which belong to their own caste in society. Under these conditions, industrial schools become a necessity, and their products are felt immediately and continuously. These two portraits of society argue more than words against that sentimentalism which would transplant institutions created by imperative conditions into a society in which those conditions are wanting. Thus far regard has been had to the public schools.

In case youth have arrived at years of discretion and decision, their choice of a trade or profession may be considered as virtually determining their subsequent career. This decision, however, is wholly that of youth themselves, being not the direction pointed out by the strata of society, or by the necessities of parents, or by the studies which the state has prescribed for the school. Special schools have been established to meet the demands of those youth who prefer to choose between the liberal and the technical courses of study. It may be urged that industrial education fosters a love for manual labor, and hence assists society to appreciate this necessity for training in physical skill. To this it is answered that the tendency of society to settle down into occupations which are hereditary is dependent upon influences quite outside those of the schools; they belong to country, climate, history, and national surroundings. The United States are not at that point of historical necessity when industrial education will be accepted in the public schools, although some of the Eastern States are exhibiting occasional marks which characterize the conditions upon which technical education rests. Industrial education is an evolution of conditions precedent; it is not an institution which can be transplanted successfully from country to country, irrespective of circumstances.

LEGEND OF HIAWATHA.

THE Legend of Hiawatha belongs undoubtedly to the traditions of the aborigines who inhabited the regions which border upon the "Lake of a Thousand Isles," as the French explorers called that portion of the river St. Lawrence which is now known as The Thousand Islands. Mr. J. V. H. Clark, of Manlius, N. Y., wrote the stories in 1843, as they were related to him by two Onondaga chiefs. According to this account, the league of the famous Six Nations was formed by the Good Spirit, Ha-wa-ne-u, who was first seen on the river in the person of Ta-oun-ya-wat-ha. This being, deputized from Ha-wa-ne-u, taught the people agriculture, fishing, and commerce. He organized the Six Nations into a league for offensive and defensive warfare, making a farewell address to them at the close of his labors. The traditional account then continues: "As the wise man closed his speech, there burst upon the ears of the assembled multitude the cheerful sounds of the most delightful singing voices. The whole sky seemed filled with the sweetest melody of celestial music; and heaven's high arch echoed and re-echoed the touching strains, till the whole vast assembly was completely absorbed in rapturous ecstasy. Amidst the general confusion which now prevailed, and while all eyes were turned towards the ethereal regions, Hi-a-wat-ha was seen majestically seated in his canoe, gracefully rising higher and higher above their heads through the air, until he became entirely lost from the view of the assembled throng, who witnessed his wonderful ascent in mute and admiring astonishment; while the fascinating music gradually became more plaintive and low, and finally sweetly expired in the softest tones upon the ear, as the wise man Hi-a-wat-ha, the god-like Ta-oun-ya-wat-ha, retired from their sight as mysteriously as he first appeared, from the Lake of a Thousand Isles, and quietly entered the regions inhabited only by the favorites of the great and good spirit Ha-wa-ne-u." ("The 1000 Islands," Hough, p. 17.)

MISCELLANEOUS NOTES.

THE Boers of the Transvaal have been taught a lesson in humanity by Gladstone, by his accepting terms of comity with them, instead of carrying on the war against them to the bitter end. True greatness overrides questions of power when justice suspends the scales.

VICE-PRESIDENT CHESTER A. ARTHUR became chief magistrate of the United States by the death of the President. He took the oath of office in New York, Sept. 20, and again Sept. 22, in Washington. The people will give their best wishes to President Arthur, trusting that he will honor the position which destiny has called upon him to occupy.

CAPT. C. L. HOOPER, of the U. S. Navy took formal possession of Wrangell Land, Aug. 12, on behalf of the United States, calling the new territory New Columbia. The land is situated in the Arctic Ocean, west of north from Behring Strait, nearly on the seventy-fifth parallel. It is a barren, rocky, desolate place, although minerals may abound there. Capt. Hooper is in command of the "Corwin," and is searching for evidences of the fate of the "Jeannette," which was last spoken by a whaler Sept. 3, 1879.

GLADSTONE'S Land Bill for the relief of Ireland is one of the most powerfully educative measures that the world has witnessed in a long time. The act begins a new era in the land questions of Europe; it elevates notions of justice above the fact of possession; it adds new lustre to the idea of peaceful arbitration; it conceives man to be endowed with inalienable rights; it will instruct the youth of Ireland with greater potency and more effectively than a regiment of the ordinary schoolmasters, for the obvious reason that its authority rests upon justice and public approval.

SIR JOHN LUBBOCK, the distinguished president of the British Association of Science, in his recent address, said: "Summing up the principal results which have been attained in the last half-century, we may mention (over and above the accumulation of facts) the theory of evolution; the antiquity of man, and the far greater antiquity of the world itself; the correlation of the physical forces and the conservation of energy; spectrum analysis and its application to celestial physics; the higher algebra and the modern geometry; lastly, the innumerable applications of science to practical life, — as, for instance, in photography, the locomotive engine, the electric telegraph, the spectroscope, and, more recently, the electric light and the telephone."

Is surgery a science? has been promoted to a new interest among educational questions by the autopsy of the body of President Garfield. This examination revealed the fact that the surgeons had failed completely in their calculations regarding the whereabouts of the bullet. The unprofessional mind asks what safety there is in the theory of a physician, when surgeons even are unable to locate with any certainty physical diseases which are wounds. It would be unwarranted to decry surgery upon this mistake; but it is natural to question the foundations of the science when men of pronounced and acknowledged abilities were unable to locate the ball or discover the direction in which it passed into the body.

HON. ANDREW D. WHITE, late United States minister to the court at Berlin, has returned to his chair as president of Cornell University. His administration at the seat of the German government was eminently honorable to himself and to his own country. His scholastic attainments and acquaintance with German history won for him the respect and confidence of the German people; his extensive experience in affairs of state gave him standing with the foreign governments; his personal address won the cordial regard of all who met him. His countrymen will remember him most kindly for the unwearying attentions which he was always ready to give to American students who were seeking the advantages of the German universities; his home was open to all young men and women who sought his advice and aid. President White did much to cement the friendship which exists between Germany and the United States. He resumes his duties at the University from choice.

IT is an undisguised pleasure to note the establishment of a Department of Political Science in two colleges in the United States, to wit, Columbia College and Michigan University. The course comprehends, practically, international law, political economy, history of diplomacy, constitutional and administrative law, political and constitutional history, social science, political ethics, sanitary science, finance, and statistics. The degree awarded to graduates from the course will be Ph. D. The time has arrived in governmental affairs in the United States when schools of political science should be founded in connection with our leading universities; for there is too much ignorance among the people in regard to government, — as to what constitutes it historically, legally, and commercially. Our government being of the people and by the people, the people have responsibilities of legislation and administration laid upon them which demand unusual facilities for information and ripe scholarship. These schools will meet this demand.

PHYSICAL education has been a thing of public discussion from time immemorial; it has found advocates for all forms of exercise of which the organization of the body will permit, from walking on the toes to standing upon the crown of the head. Archery, rowing, batting, swimming, gymnastics, calisthenics, running, hawking, and many other kinds of active out-door exercises have been in vogue. In the United States, except in the great West, riding on horseback has never been extensively practised, especially by ladies. This exercise is so well calculated to develop physical beauty and strength as well as intellectual tone and vigor, that it would be desirable to see it introduced more extensively. It is thus that we take much pleasure in noting the recent contest at Rochester, N. Y., between Mrs. Belle Cook of California, Miss Emma Jewett of Minnesota, and Mrs. Williams of London, England. These ladies rode on horseback for the championship of the world. The race was twenty miles. Miss Jewett carried off the crown. We hope these contests will give renewed attention to the matter of ladies riding on horseback, for the consciousness of being able to control a spirited horse is of itself worth all it costs to learn to ride.

THE Russian Minister of the Interior says in a late official paper: "The government recognizes the detriment to the Christian population of the commercial activity, exclusiveness, and religious fanaticism of the Jews, which are still predominant in spite of twenty years' efforts to blend the two populations." The student of history finds no end to the phases of treatment which the Jews have received from other peoples. The Jews are a peculiar nation; they live everywhere; they are intensely religious; they are not producers, but traders and speculators; they are thrifty, being economical, and their money sways empires; they are patriotic, especially when their religious beliefs and rites are involved in the issue; they have a history which is as wonderful as Oriental tales. The minister of Russia is disappointed that twenty short years have not changed the nature of the Jews, when this nature has come down through the world unchanged from the days of Abraham; and because of this integrity of nature, the government inclines to treat it with severity. Public ministers of state are among the most influential educators of the public that appear in official robes; and could the Russian authorities understand that cultivation, not repression, brings diversities of national traits more in unison and harmony, Russia would experience far less domestic infelicity than she has during the past years, and her rulers would not need the escort of bristling bayonets as they do now, when moving before the public.

REPORTS, NOTES, ETC.

HISTORY.

Morgan's "Ancient Society" is a valuable contribution to the history of primitive institutions. The results reached by Maine, De Coulanges, and others were very important and valuable; but Mr. Morgan, with fresh materials, has certainly carried the investigation back one step farther: at least, he has approached the subject from a different point of view, — from the state out of which mankind grew; and by reascending along the lines of progress, he has attempted to give an accurate and comprehensive description of ancient society. Gentile society has of course been thoroughly studied and ably presented by Mommsen, Lange, Coulanges, and others; but as it is impossible for one to understand the institutions of Greece and Rome without a thorough knowledge of gentile society, Morgan's discussion, which brings the early social stages of these nations in comparison with savage and barbarian society, is especially useful. In a word, he aims to supply the connecting link between the gentile society of the classic nations and the savagery out of which it grew. To us who have been in the habit of studying classical institutions as they appeared in their maturity, and then ascending by historical records to the primitive age, this book will be a valuable and indispensable aid; for we can now reascend from prehistoric antiquity, and in this way the student of history and archæology will meet. It seems odd to the student of classical antiquity to have the history and experience of the American Indian tribes adduced to illustrate the early institutions of Greece and Rome, the Roman Senate compared with the Iroquois Council; but it certainly gives a reality to the study never before experienced. The period of Homer, dim and legendary as it seems, receives new light when treated as the upper stratum of barbarism, and brought into comparison with the primitive condition of the Indian tribes. When the *gens* of the Iroquois is placed beside the *gens* of the Grecian tribes, it is impossible not to perceive that they are the same organization. The treatment of the *gens* as the unit of the social system, with its archon or chief, its common lands, common burial-place, and common worship, has been admirably done by De Coulanges in his "Ancient City" (translated by Willard Small). Morgan's description of the *gens* is in the main accurate, although in one or two particulars needing correction. Grote, Mommsen, and others have considered the *gens* as an extension of the family (see Grote's "History of Greece," III., 62 f.); *i. e.*, regarding the family as primary and the *gens* as secondary. This view Mr. Morgan considers untenable (p. 230): for he says, "Two *gentes* were represented in every family"; and again, "The *gens* embraces a part only of the descendants of a common ancestor; it embraces a part only of the family, and excludes the remainder" (p. 230). Here he loses sight of the peculiar organization of the *gens*, and its relation to the *paterfamilias*. The woman, upon marriage, passed wholly from the control of her father into the family of her husband; *i. e.*, the wife became the agnate of her husband, marriage creating an agnatic relation just like adoption. The wife, therefore, having been initiated into the worship of her husband's family, becomes his agnate and a member of his *gens*. Mr. Morgan was probably misled by the fact that the woman, after marriage, retains her original gentile name; but Mommsen has shown that the woman did in early times adopt the name of her husband. This, at least, is the explanation he gives of the formula *Quando tu Gajus, ego Gaja*; "Gajus" being originally a gentile appellation ("Römische Forschungen," p. 10 f.).

The manner in which society was organized into *gentes*, *phratriæ*, and tribes, the functions of each being described, the centre of the life of all being in the religious worship, the gradual development of this *societas* into a *civitas*, all receive new light from Mr. Morgan's treatment. When he says, however, following Livy (I. 8), that the Senate created the patrician class, the statement needs modification. Now, the Senate was composed of the heads of the *gentes*; the patricians were the sons of the *patres*, whether in the Senate or not. Further, "All public measures originated in the Senate" (p. 315), "those upon which they acted independently as well as those which must be submitted to the popular assembly and be adopted before they could become operative"; *i. e.*, Mr. Morgan attributes probouleutic powers to the Senate, like those possessed by the Senate at Athens, which prepared measures for the public assembly. Students of Roman history are not agreed in regard to the initiative power of the Roman Senate. The ordinary formulæ, *Patres auctores fiebant*, *lata ad populum*, but *re-lata ad senatum*, are not sufficient to disprove that in the beginning some such initiative power was possessed either by the Senate, or by the assembly composed of the heads of the *gentes* (*concilium patrum familias gentium patriciarum*).

The manner in which ancient society passed from gentilism — the various steps being traced, and the opportunity of comparison with other but similar forms of society being offered, until at last, after many expedients, both Rome and Athens had worked out a system of government resting on territory as well as property, and dealing with persons through their territorial relations — is ably presented. When Mr. Morgan comes, however, to matters of detail, his statements lack definiteness and are often incorrect. With respect to the tribes of Servius Tullius, it is incorrect to state that after Servius Tullius had enclosed the seven hills with one wall, he divided the city into four parts, which before had consisted of three (p. 337). The old division was of course founded on the *gentes*, while the new was local. Neither is Mr. Morgan correct in comparing the Roman local tribes with the *demes* of Cleisthenes: they correspond to the *tribes* of Cleisthenes, while the *demes* were the Italian *pagi*.

There are many other matters of detail which need to be corrected: as the confusion between *custos urbi* and *præfectus urbi*, and the statement that after the time of the Decemvirs, the name of the office *princeps senatus* was changed to prefect of the city (*præfectus urbi*); and further on, that the prefect was elected by the *comitia*, and that the office of *prætor urbanus* at a later day "absorbed the functions of this ancient office and became its successor" (p. 320); that from the time of Romulus to that of Servius Tullius the Romans consisted of two distinct classes, the *populus* and the *plebs*, and that both entered the army. The plebeians did not of course enter the army until the time of Servius Tullius. In fact, the main object of his organization was to bring the plebeians into military service. Also the statements on p. 325 in regard to the origin of the clients and plebeians: De Coulanges has shown that the clients were indispensable to the gentile organization, and were admitted to the worship of the *gentes* (p. 150). The clients could not have been plebeians.

These criticisms, however, are matters of minor importance, and do not detract from the value of the work.

Asbach has an article of interest to students of Roman history in "Rhein. Museum," XXXV. 2. The contradictory statements made by Suetonius (Aug., 26) and Dio (51) about the duration of the consulship of Augustus in the years B. C. 31–29 have never been satisfactorily reconciled. Asbach, in order to test Suetonius's accuracy, examines all the statements made by him about the consulships of the Julian and Claudian emperors, at the same time comparing these statements with the inscriptions. The result is that Asbach accepts Dio's statement in regard to the time, B. C. 31–29, but thinks that Augustus held the office of consul eight times, instead of five as stated by Suetonius.

Prof. Hultsch returns, in "Neue Jahr. f. Phil. u. Pæd.," to the attempt of determining the value of a denarius in the time of Diocletian. The opinions of Mommsen and of Hultsch in regard to the value of the denarius in Diocletian's edict have been at wide variance; Mommsen (Röm. Münzwesens, p. 800, and "Anm.," 235) setting the value about four times higher than Hultsch's estimate. Hultsch now estimates the worth of a denarius as equal to 3.133 centimes, or about six cents. The value of a denarius in the time of the Republic was about sixteen cents.

In EDUCATION, No. IV., a brief summary of Mommsen's article on Porcia, the wife of M. Brutus, the friend of Cicero, was given. Prof. Rühl combats the view of Mommsen that Porcia was not the daughter, but the wife of Cato Uticensis, and was already fifty years old when she married Brutus. According to Rühl, she probably contracted the marriage with Bibulus when very young, as was not infrequent at Rome. Apropos to this subject, Friedlaender has an instructive table in his Sittengeschichte, Vol. I.

p. 552, where a large number of inscriptions are collected in which the age of the woman at marriage is given. The first list is of those married between the ages of twelve and thirteen years; marriage at this age seems not to have been infrequent, either at Rome or in other towns in Italy. Then when Porcia married Brutus she would be not over thirty, which agrees with the statement in Plutarch, Brut., 13: "Porcia was the daughter of Cato; she married her cousin Brutus very young, though she was a widow, and had a son, named Bibulus after his father."

The discussion between G. Gilbert (Fleckeisen's Jahr., 225 f.), and Hartel, in regard to the probouleutic powers of the Athenian Senate, is of interest. Hartel advances the view of a first and second reading of bills in the Athenian Ecclesia. The discussion really hinges on the meaning of *ἐις τὴν πρώτην ἐκκλησίαν.* Gilbert claims that the testimony of inscriptions is of no value in determining this point. Hartel explains the passage as meaning either the first assembly after the session of the Senate in which the bill (*προβούλευμα*) was prepared, or the first assembly after that in which the bill was referred. Gilbert's view seems more probable, — that it was the first assembly after the session of the Senate in which the bill originated. If the inscriptions are to have any weight, it seems difficult to explain Höch's exposition of C. I. A., II. 76, according to which the *demos* requested the Senate to bring in a certain bill; if this were true, it would seem that the Senate must, after having been instructed to bring in the bill, obtain permission to have it made the order of the day at the first assembly.

Cobet has several interesting articles in Mnemosyne, Vol. VIII.; but his remarks on the account given by Nepos of the circumstances attending the death of Miltiades are particularly valuable. Nepos states that Miltiades was fined fifty talents, being unable to pay which, he was thrown into prison, and died there; that his son Cimon was compelled to take his father's place as a prisoner, till the fine was paid with money supplied by Callias, at the instance of his sister Elpinice. Others tell the same story. Herodotus (vi. 136) says only that Miltiades died of his wound, and that his son Cimon paid the fifty talents. A passage in Plutarch (Them., 5) shows that the family was very rich; that Cimon made a great display at Olympia, Ol. 74. It is clear that Nepos and Cicero, in asserting that Miltiades and Cimon were thrown into prison to secure the payment of the fine, were ignorant of Attic law.

PHILOLOGY.

JORDAN has an article of interest in Hermes, No. 4, Quæstions Orthographicæ Latinæ. According to Jordan, Latin inscription ought to have weight in Latin orthography, as against the MSS. He complains that even Keller prefers *Paulus* of the MSS. to *Paullus* of the inscriptions. *Sallustius*, not *Salustius* (cf. C. I. L., IV. p. 252); *sæpio*, not *sepio* (cf. C. I. L., I. p. 594); *dicio*, not *ditio* (cf. C. I. L., I. p. 578, also Liv. iv. 8, 2); *condicio*, not *conditio* (cf C. I. L., V. 5050, also Liv. v. 4, 1); *tus*, or *thus*, the form with the aspirate predominating in the Augustan age (cf. C. I. L., III. p. 953, where *thus* is found); *Quinctius* before the Augustan age, in which the usage varied; in the time of the empire, *Quintius* is better (examples for *Quinctius* in C. I. L., I. p. 592).

Rhotacism, or the change of *s* to *r* in attempting to lighten the difficulties of pronunciation, is common in all the Indo-European languages, but has been, as all scholars are aware, particularly wide-reaching in Latin. According to a recent valuable article, rhotacism takes place in Latin, (1) regularly, when a single *s* stands between two vowels; (2) in nominative singular of most masculine substantives of two syllables with stems in *s*, and of some neuters; (3) in some cases before nasals and voiced consonants; (4) by assimilation in roots where the combination *rs* occurs. The first case is of course the most frequent. A few examples are subjoined: (1) when *s* belongs to the root; (2) when *s* belongs to the stem:—

I.

Arena,	cf. *asena* (Varro, L. L. vii. 27).
Ero, *eris*, etc.,	cf. *eso* in Varro, and Sk. *asmi*.
Aurelius,	cf. *Auselius* (Fest. p. 23).
Eram, *eras*, etc.,	cf. Gr. ἐστι.
Gero,	" *gestus*.
Nares,	" Sk. *nasa*.
Oris,	" *os*.
Feriæ,	" *fesiæ*.

II.

Arboris,	cf. *arbos*.
Cineris,	" *cinis*.
Corporis,	" *corpus*.
Femoris,	" *femus*.
Fœderis,	" *fœdus*.
Generis,	" *genus*.
Honoris,	" *honos*.

The list might be largely increased from Corssen, and also from Neue.

In Varro, L. L. vii. 8, the queer form of *quirquir* for *quisquis* is found. It is to rhotacism that we owe the forms—

Carmen,	cf. Sk. *casman*,
Carmentis,	" *casmena* (Varro, L. L. vii. 26),
Hodiernus,	" *dies*,
Porro,	" πορσω,

and also the superlatives *acerrimus*, *veterrimus*, etc., the *r* here being due to assimilation.

It seems to be an established law of the language, that *s* standing between two vowels is changed to *r*; how is it, then, that one can hardly read a page of Latin without finding exceptions? Are these exceptions susceptible of being classified, and of being explained as not contradicting the law? On examination, it will be found that the exceptions may be classified under a few heads: (1) Foreign words. Now, all foreign words, so far as we know, were borrowed after the time that the Latin had ceased to feel the impulse to rhotacism. It is difficult to fix accurately just when rhotacism was most active and when it ceased to work; but the oldest inscriptions contain such forms as *curia* (C. I. L. 177), *moribus*, *generis* (47), etc. On the contrary, *lases* is found in the inscriptions, and is vouched for by Varro. The song of the Arval Brothers, in which the word occurs, must be ascribed to a period before Papirius and Claudius introduced the letter *r* (Cic. ad Fam., ix. 21, 2). According to Livy (iii. 8), *Vetusius* was written in B. C. 291, and the word was probably so pronounced. The few instances of the preservation of *s* in proper names in later inscriptions are due doubtless to an archaizing tendency. Some words, such as *honos*, *labos*, *colos*, etc., remained in good use even to the time of Cicero; *honos* occurs more frequently in Cicero than *honor*. It may be stated that Latin had ceased to feel this tendency to rhotacism by the time of the first Punic War. Hence, all foreign words borrowed after that time would naturally preserve the *s* between two vowels unchanged; cf. *Ephesus*, *Anchises*, *nausea*, *Ausonia*. In compound words the *s* remains unchanged. Initial *s* never suffers rhotacism. We know that prepositions were not joined with following words before the time of the Gracchi; and even far later, they are written as separate words in the majority of cases. It is not, then, difficult to understand why the *s* is not changed in compound words, unless they have final *s* in the first part. Again, in some cases where *s* occurs between two vowels, it did not originally stand alone. Cf. *causa*, written by Cicero *caussa*, — *casa*, root *skad*, *skadta*, *skassa*, *kassa*, *casa* (Corss. Beitr., p. 448); also, the perfects and supines of verbs with stems in *d* or *t*. *Nasus* and *miser* are more difficult. *Cæsar* is no doubt a form belonging to the older language, as is shown by the early appearance of the word in history.

The cause of the change of *s* to *r* is not difficult to explain. The short spirant *s* demands greater precision and firmness in the position of the organs of speech than is necessary for *r*. *S* is pronounced by sending the breath through a very narrow aperture formed between the tip of the tongue and the upper gum; a retraction and elevation of the tongue towards the palate give the sound of *sh*; a projection against the teeth gives either *t* or *th*, according to the completeness of the contact. Now, rhotacism occurs in Latin chiefly between vowels, and before or after flat or voiced consonants; a little negligence in sharply distinguishing between voiceless *s* and the voiced letter which precedes or follows, changes sharp *s* to the flat *z*. Corssen considers (Auspr., I. 295) this the transition stage to *r*. If during the articulation of the *z* the tongue is not held firmly, but its tip is withdrawn and narrowed, the result is *r*; either the ordinary English *r* or the trilled *r*, both of which are to be distinguished from the guttural *r*. Corssen shows that the dental *r* was the ordinary Italian *r* (cf. the change of *d* to *r*).

SCIENCE NOTES.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

When the British Association, which has just convened at York, England, assembled fifty years ago, it was a meeting, to many, of doubtful prospects. Only 350 met together in ardent sympathy. In half a century, the meeting swelled to 2,000; many of whom, by sympathy or labor, were earnest in the furtherance of the purposes of the Association. Sir John Lubbock, the president of the Association, in his late address, gave a grand résumé of the exploits of science since the first meeting. It was not necessary to startle the world by a fresh hypothesis of creation; it was amply sufficient to survey the extraordinary progress of the last fifty years. Sir John gave to his subject a dramatic interest. Beginning with biology, he showed with what eyes men viewed nature fifty years ago, and what effect Mr. Darwin, in his "Origin of Species," has had upon that view. He argued that without holding to the special theory as a finality, what is beyond controversy is that since Darwin's suggestion, the Book of Nature is no longer "some richly illuminated missal, written in an unknown tongue." "There is a reason for every difference in form, in size, and in color; for every bone and every feather, almost for every hair. . . . In 1831 the total number of animals described was not more than 70,000. The number now is at least 320,000. . . . A single species would repay the devotion of a lifetime." The botanist and the biologist have learned how plant and insect depend upon each other; and what was at first theoretical science has affected medical science and surgery. Science has also laid bare the past with a more searching investigation than ever before. Expanses of history prior to the assumed historic period have been brought to light from Assyria, Egypt, Scandinavia, and the lakes of Switzerland. Strata of civilization and of rocks lying hid for thousands of years have been exposed to view. In geology, for instance, from 25,000 recent species among fossils, it is calculated that the record would to-day exceed 2,000,000! Lake formation, glacial and volcanic forces, have told their secrets. Astronomy, from four minor planets known in 1831, counts 220 to-day. Our earth is but a fraction out of 75,000,000 worlds *at least!* and these last do not count the extinct stars. We make the stars teach us their own composition with light which started more than fifty years ago from its source; and new colors, even, in our own atmospheric light have been discovered. These science associations, looking back over great achievements, look forward to still greater possibilities. Part of their work is to record and to prophesy. As Sir John said, "No one can doubt that their influence is very considerable." We have only to look at their volumes of learned transactions to feel the force of the remark.

Sir W. Thompson in his address illustrated the degree to which whole provinces of modern science in fifty years have become conterminous. The doctrine of physical energy, from a mathematical formula, has been expanded into a universal principle of nature. In fifty years men have learned that physical energy proceeds from but one source (with the exception of tidal force), — all do their work at second-hand from the sun. The vehicle may be different, the origin is the same.

Profs. Williamson on the atomic theory, Ramsay on British geology, and Flower on anthropology, gave a masterly summary of their respective studies.

Prof. Huxley gave a résumé of the vast strides toward certainty that the human race is taking in a very important branch of knowledge. He declares that from no single study is so much to be expected toward the settlement of the profoundest and the most anxious questions as from "that application of the sciences of geology and biology which is commonly known as palæontology." He read there, as in a book, the world's history. It was William Smith who in 1799 discovered the great law that each stratum has its peculiar fossils, and that the order of these fossiliferous strata is always the same. From the moment this fact was realized, the history of the creatures that had lived upon the face of the earth became plain. Much has been done, but much remains to do. Eastern Asia is unexplored. No man can say what may not be gathered from North America, where discoveries of the highest importance are beginning to be made with the greatest rapidity. Any day something may be found which will settle a scientific problem till now insoluble. But many people look at this evidence as simply supporting this or that hypothesis. In Huxley's hands it is made to support the hypothesis of evolution. He says, "The palæontological discoveries of the last decade are so completely in harmony with the requirements of evolution, that if it had not existed the palæontologist would have had to invent it." The special help palæontology gives to evolution is that very discovery of missing types which it alone, from the nature of the case, can supply. The question among scientists to-day seems to be, Is there any limit to the hypothesis of evolution; is there any phenomenon, external to man or peculiar to him, that it will not explain?

Prof. A. W. Williamson, the president of the Chemical Section, led off an attack on our present system of chemical nomenclature. His remarks were directed principally against the numerous "acids" which find a place in every list of chemicals. In this he was supported by Prof. Thorpe, who considered that the term "acid" should be abolished as misleading. We are glad that a change is mooted, but sincerely hope that we shall be delivered from a labyrinth of cabalistic figures compounded of Greek characters, astronomical signs, and mathematical accentuations, such as those recently proposed by Sir B. C. Brodie. Before any alteration is made, we trust that the British and American associations will confer together on the subject, and decide on a new and simple nomenclature that will meet the needs and satisfy the wishes of all lovers of simplicity.

Progress in Electricity. — The various applications and extensions of the electric light crowd each other so closely as to almost demand a special chronicle of its progress. We need scarcely mention the Paris exhibition of electrical appliances, since that is most fully described in the columns of the public press. The cost of the various systems is being rapidly reduced, and thus electricity is able to compete with other sources of artificial light. Lighthouses lighted by the electric light are being constructed. The new light at the Marseilles lighthouse will be equal to 3,500 gas jets, and visible at a distance of twenty-five miles. It is to cost seven times less than the light which it replaces. The tanks of a London (England) aquarium have been lighted by lamps submerged in the water, and thus visitors have been able to watch the movements of the finny inhabitants at night. The lamps were of the incandescent class, enclosed in hermetically sealed glass globes, and worked by a current from a Faure battery charged at Woolwich.

Some attention is being paid to the use of electricity in working rock drills in mines. At the Paris exhibition, M. Chenot showed a Taverton diamond drill and a percussion drill worked by electricity.

Accidents through the breaking of elevated telegraph wires have led electricians to turn their attention toward some safe system of underground wires. At Washington, a telegraph company is trying the experiment of running well-insulated cables through the common sewers. They would be safe from fire, if not from damp, in that situation.

In the mechanical world, inventors are racking their brains to find a gas to supersede steam (and even coal gas) as a motive power. Ether, ammonia vapor, alcoholic vapor, and even chloroform have been suggested, notably by a Dr. Stapfer at Marseilles.

The use of a lighter and stronger material in lieu of iron for ship and engine building is being rapidly introduced. Steel is now largely used where iron was once thought absolutely necessary. We seem to be passing from the iron to the steel age of metallurgy.

Prof. Helmholtz, in an interesting communication on electrolytic conduction, stated that the experiments he was about to describe were a continuation of experiments he had formerly made in connection with certain objections that had been urged against Faraday's law of electrolysis. He had already shown that a feeble galvanic current could be passed through an electrolytic preparation of acidulated water, even though the electro-motive force was not sufficient to decompose the water. The action of such a current would be, in the first place, to coat the electrodes, the one with hydrogen, the other with oxygen. The hydrogen, however, speedily combined with the free oxygen in the air and liquid to form water, while the oxygen on the positive electrode as speedily dissipated itself. In this way polarization in the electrolytic cells was kept down, so that the original current was never wholly destroyed. In the later experiments Prof. Helmholtz had completely removed the air from the neighborhood of the electrolyte. This was effected by an ingenious use of the property possessed by palladium, of holding large quantities of hydrogen gas in its pores. With this specially prepared cell he found that a feeble current passed through it fell down to zero in a very short time, the difference of potential due to the polarization of the electrodes quite balancing the original electro-motive force. On throwing off the battery, the polarized electrolytic cell showed on a delicate galvanometer a reversed current, which rapidly fell to zero from an intensity equal to that of the original current before polarization set in. Another result to which his researches had led him was that there were no *chemical* forces acting between the molecules of an electrolyte, other than those that existed in virtue of what might be called their electric charges: a result which cannot fail to have an important bearing upon the question of chemical constitution.

Hautefeuille and Chappuis have presented to the Chemical Society of Paris a valuable memoir upon ozone. They first studied the effect of temperature and pressure on the transformation of oxygen into ozone, using the silent discharges for this purpose in the apparatus of Berthelot. At 760 mm. pressure, 0.106 of ozone by weight was formed at 20°; 0.149 at 0°; and 0.214 at —23°. Under 180 mm. pressure, the quantity was 0.089 at 20°; 0.137 at 0°; and 0.181 at —23°. Next, the effect of mixture with other gases was investigated; and it was found that while at 0° no effect was observed, at 23° the amount of ozone was increased to 0.216 when the oxygen was mixed with four times its volume of nitrogen, and to 0.240 when twice as much nitrogen was present. Hydrogen and silicon tetrafluoride increase still more the quantity of ozone. The authors then examined the physical proportion of ozone: the density as determined by Soret, and the heat of formation by Berthelot, being the only data heretofore known. The production of a gaseous mixture containing 21 per cent of ozone, which is permanent at —23°, enabled the authors to obtain interesting results on compressing it. The oxygen, cooled by methyl chloride, was ozonized and placed in the compression tube of a Cailletet apparatus, care being taken to keep the temperature at —23°. On working the pump, the first few strokes developed an azure-blue color in the tube, which deepened as the compression increased, till under a pressure of several atmospheres it became indigo-blue. Cooling the tube to —88° by immersion in liquid hyponitrous oxide, the color became three or four times darker. Upon filling a tube a metre long with ozonized oxygen at the ordinary pressure, and looking through it at a white surface, the gas was seen to have a sky-blue color, darker as the amount of ozone was greater; thus proving ozone to be a colored gas. The next question arose, Is liquid ozone colored? By a sudden expansion from a pressure of 75 atmospheres at —23°, a thick mist was momentarily produced (this result would not take place with oxygen below 300 atmospheres). Compression to 200 atmospheres at a temperature of —88° did not give, on expansion, any visible liquid. By adding, however, carbon dioxide gas, whose point of liquefaction is not far from that of ozone, a liquid layer was obtained, blue in color, and not differing in shade from the gas above it. When slightly expanded and then immediately compressed, an azure-blue liquid is obtained, much deeper in color than the gas, the cooling produced by the expansion reducing the temperature of the ozone below its critical point. Hence a mixture of oxygen and ozone, containing above 50 per cent of the latter gas, compressed below —88°, would give drops of a dark-blue liquid. The mixture of ozone and oxygen should be compressed slowly with care, and be well cooled; otherwise the ozone is decomposed with detonation. It must therefore be classed with explosives, since Berthelot has shown that 24 grams of oxygen absorb 14.8 caloric in conversion into ozone. Finally, the authors made use of this blue color to ascertain whether the products of decomposition of carbon dioxide by the silent discharge contained this gas. Upon compressing the products of the action of the electric discharge upon carbon dioxide in a Cailletet apparatus, not only was a colored gas obtained, but the undecomposed CO_2 liquefied and became blue. — *Bull. Soc. Ch.*, II. 35.

SIR JOHN LUBBOCK's paper on the sense of color in animals, in the report of the British Association, first dealt with Bonnier's experiments with bees, and showed many fallacies in them, which were avoided in a series of his own observations recently made. He took slips of glass of the size generally used for microscopic work, and pasted on them slips of paper colored blue, green, orange, red, white, and yellow, and induced a bee to visit all in succession, when covered by a plain slip on which was a drop of honey. Then the honeyed slips were removed. When the bee returned from the hive, the order of its visits to particular colors was noted, and the result of one hundred different experiments was that *blue* was the bees' favorite color; then white, yellow, and green. The observations were varied in several ways with the same results. Daphnias were found by other experiments to have a decided preference for red, yellow, and green.

PROF. THORPE read a report before the British Association on the chemical action between solids. The author drew attention to the extremely rare instances of such action hitherto observed, showing how many of these might be explained on the supposition that combination actually occurred between these bodies, either in a state of solution or in a state of gas. For example, the formation of cement steel by the combination of carbon with iron, which had long been adduced as an example of such combination between solids, was now explained by the fact that iron at a high temperature was permeable to gases, and in the actual process of cementation, oxides of carbon were formed, which were in reality conveyers of carbon to the metal. He then illustrated, by experiments, the formation of several compounds by bringing together the components in solid form, choosing as examples such as would manifest their formation by characteristic coloring. Thus, potassium iodide and mercuric chloride, silver nitrate and potassium chromate, etc., were powdered together in a mortar; and in each case, evidence of an action was exhibited. The author referred to the memoir of the Belgian physicist, Prof. Spring, on the same subject, some of whose experiments he had repeated, and in the main confirmed. One of the most remarkable results obtained by Prof. Spring was the formation of coal from peat by subjecting the latter material to a high pressure. Peat from Holland and Belgium was, according to Spring, changed into a mass which in all physical characters resembled ordinary coal. Experiments made by Dr. Thorpe with various samples of British peat yielded, however, a very dissimilar result. These experiments were made with pressures considerably less and more than those employed by Spring. Although solid, compact masses, hard and very much changed in structure, were obtained, in no case was any product obtained which could be confounded with bituminous coal. Prof. Thorpe stated that on purely chemical grounds, it was highly improbable that mere pressure had been but little more than an important factor in the transformation of woody matter into coal.

DR. R. KÖNIG has just completed a new instrument — a variety of the wave siren — with which he proves an extremely important fact, which probably is new to all acousticians; namely, that the quality of a compound tone is very distinctly affected by differences of *phase* in the components.

M. MACAGUO has been experimenting upon the influence of atmospheric electricity upon the growth of the vine. A copper wire with a platinum point was plunged into the extremity of a branch bearing fruits, while another wire connected the origin of the branch with the soil. An increase of vegetation was distinct, the wood of the branches contained less potash than that of other branches, whilst the grapes contained more sugar and less acid.

THE International Geological Congress meeting at Bologna adopted, on the 29th ult., a resolution in favor of confiding the elaboration of a general geological map of the world to a committee of seven geologists, the reporter and president to be Germans, and the other five to be selected from England, France, Italy, Austria, and Russia severally. The scale of the map is to be 1-11,500,000th of the natural size, the work to be performed in Berlin.

NATHAN BISHOP, LL. D.

Nathan Bishop, LL. D., whose excellent portrait is the frontispiece of this magazine, was born in Oneida County, New York, in 1808. His father was a farmer, and he spent his youth on his father's farm until he was eighteen years of age, when he commenced the work of preparation for college. Owing to his straitened circumstances, which obliged him to suspend his studies from time to time to earn the money to defray his expenses, it took him eleven years to complete his academic and collegiate studies. He graduated at Brown University in 1837, and was a tutor in that institution one year, 1838–9. About this time the subject of the improvement of the system of public schools in Providence awakened a deep interest in the community. A majority of the aldermen and city council for 1837–8 were in favor of a complete reorganization of the system; and shortly after the new city government came into power, a joint committee of both boards was appointed to consider the subject of such reorganization. This committee chose a subcommtttee, whose special duty it was to visit prominent places in New England and obtain such information as might be of service to them in carrying into execution their proposed plan. This committee subsequently reported among other things that "it is expedient to establish a superintendent of public schools," and they recommended that "he be paid a salary of $800." The meeting for the election of a superintendent was held July 8, 1839, and Mr. Bishop was chosen to fill the office; being, so far as is known, the first superintendent of public schools elected in any city in this country. Mr. Bishop presented his first report Nov. 22, 1839. He held this office for thirteen years, when he retired from it to enter upon the discharge of the duties of a similar position in the city of Boston, as first superintendent of the schools of that city. The reports of Mr. Bishop during this long period indicate the character and the amount of work he performed for the cause of popular education in New England, giving to common schools an impulse which carried them far towards the elevated ranks they have attained. In 1858 he removed from Boston to New York, where he became well known as the friend and generous supporter of many educational, philanthropic, and religious enterprises. While acting as Indian Commissioner, he contracted the disease of which he died at Saratoga Springs, Aug. 7, 1880.

J.A.J. Wilcox Sc. Boston

J.F. Ryder, Cleveland

Very Truly Yours
J. A. Garfield

[illegible]

EDUCATION.

No. III. [illegible]

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Very Truly Yours
J. A. Garfield

EDUCATION.

No. III.—January, 1882.

PRESIDENT GARFIELD AND EDUCATION.

BY PRESIDENT B. A. HINSDALE, HIRAM COLLEGE, OHIO.

President Garfield's school preparation for teaching, and for all the duties of life, was made in four places: the Orange district school, which he left in his seventeenth year; Geauga Seminary, Chester, Ohio, where he studied four terms, in 1849, 1850, and 1851; the Western Reserve Eclectic Institute, Hiram, where he studied eight terms before going to college in 1854; and Williams College, where he graduated in 1856. A rapid summary of his characteristics as a student will form a fitting introduction to this paper.

I.

GARFIELD, THE STUDENT.

President H. W. Everest, of Butler University, Indiana, who was a student with Garfield at Chester and Hiram, and a teacher with him in the latter place, has lately given in a private letter this account of his own observations of Garfield as a student. No better analysis can be made, and so I use it in this place: —

"I met him first at Chester. Rooming in the same building, and working for a while at the same carpenter's bench, we soon became intimate. He was a noticeable student, both on the play-ground and in the class-room. We recited Robinson's Algebra together, and belonged to a literary society of our own getting-up, called the 'Mystic Ten.' At Hiram I was not classed with him, yet knew much of him as a student, but more of him as a teacher. My estimate is briefly as follows; and for many of the items I remember distinct illustrations: —

"1. His intellections were clear, vigorous, and easy in all directions, but especially so in the languages.

"2. He did not study merely to *recite* well, but to *know*, and for the pleasure of learning and knowing.

"3. It was his main object to master the thought, but the language was retained with the thought.

"4. As study was the easy play of his mind, so to recount and to review his lessons and reading was a frequent pleasure.

"5. He was a master at condensed classifications, so that his memory easily held and reproduced what he had learned.

"6. He had a wide-awake curiosity, which seemed never to be satiated. A new thing, however unimportant, always attracted his attention.

"7. He had a great desire and settled purpose to conquer, to master the lesson, to prove superior to every difficulty, to excel all competitors, to conquer and surpass himself.

"8. With this desire to conquer, there was found the most generous and exultant admiration at the success of another.

"9. Over all his study he shed the glory of a happy disposition; of youth, hope, and manly courage."

All of these points are well taken, but several of them deserve especial emphasis. He studied to *know*, and for the pleasure of learning and knowing. With this may be connected President Everest's seventh point, Garfield's settled purpose to conquer, to prove superior to every difficulty. His love of victory, over men or things, was the strongest; but it was a love born of the noblest elements. He took no pleasure in a merely personal triumph; but a triumph that was a test of honorable superiority he keenly enjoyed. Here, too, may be mentioned his full appreciation and generous recognition of all men, even though competitors or opponents. His determination to master whatever he undertook, especially to subdue his own nature, is well illustrated by an anecdote. Sitting on a log in the edge of the woods, back of the college building in Hiram, he once said to the companion of his walk, —

> "I have made a painful discovery. I have found that my mind needs interest in a subject to incite it to continuous action. The other day, I tried to read through a long bill in which I had no interest; it was merely my duty to read it. My attention wandered, thus revealing a defect in my training. If I cannot otherwise overcome this defect," he said, "I will give up my work, renounce public life, go to Germany, and take a full course in one of the universities. I must be full master of my powers at any cost."

At this time he had been in Congress several years.

His mastery of condensed classification not only aided retention and reproduction, and thus greatly facilitated the process of thorough acquisition, but was of incalculable value to him as a teacher and a public speaker. All members of his classes who appreciated him, and even those students who simply heard his lectures, cannot fail to remember the advantage that they received from his blackboard classifications. They were a capital feature of all his teaching. Besides, in his oratory, classification is an element equally important with strength of statement and aptness of illustration.

His curiosity could never be satisfied. No matter what he touched, he *must* understand it. The glow of his happy social disposition, his joyous nature, his faith, hope, and courage, and even his tendency to optimism, were an indispensable condition of his success as a student, as a teacher, and as a public man.

Finally, President Everest says Garfield did not study merely to recite well, but to *know*, and for the pleasure of learning and knowing. But Garfield did study to recite well, all the same. He was never indifferent to a recitation, or to any other appearance of his before a class or an audience. Consciousness that he had made a good recitation never failed to give him much satisfaction. Still, he perfectly appreciated that knowledge and training are the ends of study; nay, he recognized no antagonism between good reciting, in the proper sense, and thorough knowledge. The one is an end in itself, and is the necessary condition of the other. He once said, "If at any time I began to flag in my effort to master a subject, as working out a problem, I was stimulated to further effort by the thought, 'Some other fellow in the class will probably master it.'" In summing up the forces that acted in President Garfield's life, what he thought "the other fellow" was likely to do must never be overlooked. He was always generous in his emulations; but his eye never wandered from the "other fellow." At the same time, full recognition of noble achievement for its own sake, and faithfulness to the heavenly vision as revealed in his own heart, ran parallel with the spirit of emulation.

II.

GARFIELD, THE TEACHER.

President Garfield's teacher-life may be divided into three periods: the district-school period; the Hiram period before going to college; the Hiram period after his graduation. He taught district school three terms, in the years 1849, 1850, and 1851. He taught in Hiram, the first period, six terms; the second period, fifteen terms. Accordingly, he taught twenty-four terms in all, or the major part of the time from November, 1849, to his entering the army in August, 1861. Two characteristic anecdotes will tell all that can be here told about his district-school teaching; they will also tell much more besides, since they are invaluable illustrations of his life and character. The first he related to two or three friends but a short time before he left Mentor for Washington, to be inaugurated President of the United States. The subject under discussion at the time was "office-seeking" in general, and the "second term" in particular.

"The fall that I was eighteen years old, I travelled a considerable circuit round about Orange, in quest of a district school to teach. I was refused in one place after another, for different reasons, so that at last I came home, tired and discouraged. I had made up my mind that seeking positions was not in harmony with my nature; that I never should succeed in life if I hunted places, and that I would make no further effort in that direction, but would wait and see what would come to me. An hour or two after reaching home, with these conclusions fully wrought out in my mind, a man from an adjoining neighborhood called at my mother's house, and said he was 'huntin' Widow Gaffield's* Jimmie.' He wanted a teacher for his district, and he ''lowed that Jimmie would do.' I was called in," said the President-elect, "and a bargain was soon concluded. The coming of the man confirmed me in the opinion that place-seeking was not in my line; and I have never asked anybody for a place from that day to this."

The reader can reflect upon this story at his leisure. Here it suffices to say that in consequence of this contract, the future President of the United States taught his first school. Years after Gen. Garfield had ceased to teach, and when he had already acquired a national reputation as a statesman, he one day gave a lecture to the teachers' class in Hiram College. It was in this lecture that he related the second anecdote:—

"When I first taught a district school, I formed and carried out this plan: After I had gone to bed at night, I threw back the bedclothes from one side of the bed. Then I smoothed out the sheet with my hand. Next, I mentally constructed on this smooth surface my school-room. First I drew the aisles; here I put the stove, there the teacher's desk, in this place the water-pail and cup, in that the open space at the head of the room. Then I put in the seats, and placed the scholars upon them in their proper order. I said, 'Here is John, with Samuel by his side; there Jane and Eliza'; and so on, until they were all placed. Then I took them up in order, beginning next my desk in this manner: 'This is Johnnie Smith. What kind of boy is he? What is his mind, and what his temper? How is he doing? What is he now as compared with a week ago? Can I do anything more for him?' And so I went on from seat to seat, and from pupil to pupil, until I had made the circuit of the room. I found this study and review of my pupils of great benefit to them and to me. Besides, my ideal construction, made on the bed-sheet in the dark, aided me materially in the work."

The reader can also reflect upon this narration at his leisure. Here it suffices to say that a young man who had the ingenuity, patience, and thoughtfulness to carry on such work as this, not to speak of higher capacities, night after night, could not but succeed as a district-school teacher.

Before he went to college, Mr. Garfield taught classes in English studies and in the classics. On his return in 1856, he was made teacher of the ancient languages. After one year he became head of the Institute, and continued such, in active duty, until he went into the army.

His salient characteristics, both as a teacher and as a school administrator, will now be traced out. First I shall present President Everest's analysis of the teacher: —

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* A local corruption of Garfield.

> "1. He was always clear and certain.
>
> "2. He impressed the main things, but passed perhaps too lightly over the subordinate portions.
>
> "3. He had rare ability at illustration.
>
> "4. He gave more attention to the boy than to the book. He strove to develop the student, not the lesson or science.
>
> "5. He was abundant in praise of success, but sparing of blame.
>
> "6. He inspired his students with a spirit of investigation and conquest.
>
> "7. By frequent and rapid reviews, he kept the whole work in hand and gave it completeness."

The field of instruction at Hiram was regularly allotted to the different teachers; but the published scheme was never fully carried out in practice. The majority of the students were pursuing selected studies; calls for classes were more or less irregular: hence the teachers were compelled to accommodate themselves to the wants of the students. Then their desire to shun ruts and narrowness, to gain breadth, and to preserve freshness, as well as the desire to carry their individual methods and personal force through the whole school, tended in the same direction. Still, each teacher generally worked within certain lines, though the lines were not very straight or rigid. Accordingly, it must not be thought that Mr. Garfield taught all the Latin and Greek, or that he taught nothing else. He taught classes in classics and mathematics, history, philosophy, criticism, English literature, rhetoric, English analysis, and geology. Certainly his knowledge of these subjects was not that of the specialist, but it was sufficient for present demands. Nor must it be thought that the demands were small. Many young men and women were then fitting for college in Hiram; some for the Freshman class, but more for the higher classes. Then there were many young men and women of age, ability, and character, who had no thought of going to college, but wanted the "best studies"; and these sometimes tasked the powers of the teachers quite as fully as any others. Principal Garfield took more interest in some studies than in others; but upon the whole, it was hard to see that he did not teach all the studies named equally well. At some time all the studies taught in colleges, and more besides, engaged his particular attention and aroused his special enthusiasm. He always taught the class in English analysis. This study was a special favorite with him, and nowhere else did he more shine as a teacher. Through this class most of the better scholars at some time passed, even if they considered themselves thorough in it before. Probably no other of his classes is to-day remembered with equal interest by so many persons. Then his geology class, that recited at five o'clock in the morning, cannot be forgotten by a single surviving member. His method of teaching combined the technical question, the general question, the topic, and the teacher's own discussion of the question in hand. A critic might have said that the last element was too prominent, that he did too much himself, that he did not so much excel as a drill master and a disciplinarian; but if fruit is the test of method, it would be hard to sustain the criticism. He strove to awaken the student's faculties. He sought to energize or vitalize him. He revealed the world to the student, and the student to himself. He stimulated thought, created the habit of observation and reflection, aroused courage, widened the field of mental vision, and furnished inspiration in unlimited measures. If his regimen was somewhat deficient in the forces that *push* the student, it was strong in the forces that *draw* him. His associate teachers had more than ordinary ability, and were thoroughly respected by the school; but those scholars who had reached his zone always made an effort, if necessary, to be in at least one of his classes.

Principal Garfield's chapel lectures were a great source of instruction and influence. Of these he gave many huudreds, ranging over education, teaching, studies, books, methods of study and reading, physical geography, geology, history, the Bible, morals, current topics, and life questions. These lectures were full of fresh facts, new thoughts, striking illustrations, and were warm with the glow of his own life. His two years in Williams College had given his mind some new facets. He brought back the best thoughts of Dr. Hopkins, and sowed them in Hiram soil. His mind was growing every day, and the studies that nourished him nourished his pupils as well. He generally spoke from notes that he had carefully prepared, and that he carefully preserved. If these notes should be brought forth from their hiding-place and published, men would be astonished at the sweep of his thought, the versatility of his mind, and the fertility of his resources.

He appeared frequently as a preacher, both in the pulpit of the Hiram church and in the chapel. His sermons added much to his influence over his students. Here it should be said, when he came to the front in 1857, the character of the school somewhat changed: its genius was less theological or Biblical, and more secular or human. The ecclesiastical way of looking at things somewhat receded. But morals, religion, and Bible study were by no means forgotten: noble ideals of life and character — ideals of manliness, courage, reverence, and truth — were constantly kept in view. What Arnold of Rugby called "moral thoughtfulness" — the inquiring love of truth and practical love of goodness — was made prominent. Charles Kingsley and Thomas Hughes were a great deal read in Hiram in those days, and the Hiram type of Christianity became somewhat "muscular." Withal, such of the students as could receive it were filled with the principal's own largeness of nature.

His rhetorical class — known in those days as "Garfield's division" — was a great theatre of interest and improvement. He had great skill in conducting such a class; especially was he a helpful critic. This class will not be forgotten by its members.

Strong as was Mr. Garfield's intellectual side, his moral side was even stronger. He was full of appreciation and generosity. He was keenly alive to the rights of men, even the lowest and the least worthy. He respected human nature. Tenderness, compassion, and sympathy abounded in him. His sense of justice to others was keen, no matter whether he always insisted upon its being rendered to himself or not. It hurt him to hurt others. He interested himself in the young and in the weak. He often joined the boys in their sports on the campus. Once two of his special friends were "choosing sides" for the game. Two small boys appeared and asked to be chosen. The choosers objected to them that they were small, and would spoil the play. "If they cannot play, I will not," said Garfield. They were chosen, and the play went on. In his address on "The Elements of Success" will be found this paragraph: —

> "I feel a profounder reverence for a boy than for a man. I never meet a ragged boy of the street, without feeling that I may owe him a salute, for I know not what possibilities may be buttoned up under his shabby coat. When I meet you in the full flush of mature life, I see nearly all there is of you: but among these boys are the great men of the future; the heroes of the next generation; the philosophers, the statesmen, the philanthropists, the great reformers and moulders of the next age. Therefore I say, there is a peculiar charm to me in the exhibitions of young people engaged in the business of education."

Gen. Garfield once told some Hiram students that no man is ever loved simply because he has a great or brilliant mind. He may be much respected, or greatly admired, but not loved. The intellectual ray is powerful, but also fierce and pitiless. It is not until the heart ray blends with the mental and tempers it, as the heat ray the light ray of the sunbeam, that the emotive nature is touched. Feeling lies deeper than logic can penetrate. Only the heart can speak to the heart. In harmony with this law so beautifully formulated, the students respected and admired his ability; but the force that won them was the heart force. Garfield's great, tender heart, his all-embracing sympathy, his nice delicacy of feeling, his quick appreciation of everything ethically good or spiritually beautiful, will be remembered further and longer than his powerful logical faculties or his ample knowledge. He called out the demonstrativeness and affections of men in a way almost unprecedented. His heart, none but the utterly obdurate could resist. To him the phlegmatic would stir, the cold warm, and the icy melt. When he put his great brotherly arm around a discouraged or fainting boy, — poor, homesick, or blind to the way before him, — the boy very likely shed tears; but somehow the mists began to clear away from his vision, and his heart grew strong. Said one years ago, "Then began to grow up in me an admiration and love for Garfield that has never abated, and the like of which I have never known. A bow of recognition, or a single word from him, was to me an inspiration."

Perhaps it is needless to say that such a teacher and such a man was very successful as a school administrator. He had nothing of the regulation schoolmaster about him, and he put red tape to small use. He never spent his force on little things. He understood what *was*, and what was *not*, essential to discipline and good order; and he secured the first all the more readily because he was indifferent to the second. He always had a code of printed rules that he expounded each term; he exacted weekly reports of conduct: but his own personality was worth far more than both rules and reports. His management of disciplinary cases was skilful. On one occasion, after morning prayers, he read impressively selections from Prov. vii. He added, " . . . [naming three young men] are expelled from this school." Not another word was said; but the whole made a profound impression. He had unusual power in controlling and influencing bad boys. He did not always make them good; far from it: but he had so much heart and nature, was so free from cant and affectation, that rough fellows who despised a religious profession respected and loved him. Many a boy was thus inclined towards goodness, whom austerity and pretension would have driven to evil.

President Garfield left the academy for the field and the forum at the age of thirty years. But this was not until he had demonstrated his capacity for the highest educational work and honors. He had taught twenty-four terms; viz., three in the district school, six in Hiram before going to college, and fifteen afterwards, — eight years. Had he remained an educator, which he had not intended to do more than he had intended to preach, he would have proved himself worthy of the highest position in the land. Other things being equal, he was never greater than in Hiram in the years 1856 to 1861. He came in contact with from one hundred and seventy-five to three hundred students a term, of all ages from fifteen to twenty-five, and of all grades of ability. These students he fired with enthusiasm. The ordinary terms of respect and affection did not meet the case. Their idea of him was the largest that they were capable of forming. They could think of nothing more. It is common for students to form exaggerated opinions of their teachers,—opinions that larger knowledge of men generally shatters; but not so in this case. As their minds grew with years, he grew too, and they never had occasion to measure him over again. As these young hero-worshippers went out from Hiram, some to college and some to business, Mr. Garfield was the standard by whom they measured men. As, with rapturous devotion, they told men of his qualities, they were met sometimes with incredulity, sometimes with a pitying smile, sometimes with a sneer. They were told that Mr. Garfield might answer very well for a little place like Hiram, but that they must not expect to see men accept their estimate of him. But they continued to insist that time would show him equal to the highest honors. The very title by which they had been accustomed to call him at school clung to their lips. Hiram was not then a college, and the teachers were not commonly called professors. He became colonel, general, representative, senator, and President; but plain "Mr. Garfield" always seemed to befit Hiram students. Still further, his home was in Hiram for many years after he ceased to teach. His relations to the school and to the community in those years will soon be described. Here it suffices to say, his influence was largely felt by the students, even when he did not know their names or faces. What is more, to gain his approval in school, or to be worthy of it afterwards, was an ideal that many a young man or woman carried out into life. These things Mr. Garfield did naturally, and almost unconsciously. His method was spontaneity. However, as years went by, his Hiram friends were able to render him substantial service in his public career. And this they were always glad to do. To serve him, some of them hardly counted their lives dear unto themselves.

Those who have witnessed the marvellous drawing out of men's hearts towards Gen. Garfield in the last year have simply seen on a vast scale what was seen in Hiram school more than a score of years ago. The revelations of Washington and Elberon have caused little or no surprise to the Hiram fellowship; only the lamentable occasion that brought out the revelations has been a surprise to them. The faith and fortitude, the constancy and courage, the patience and piety, that shone so bright in the White House and in Mr. Francklyn's cottage by the sea, are just what this fellowship, the occasion being given, would have expected. It was said that the eyes of the wife of William the Silent were full of unwept tears; similarly, the heart of the late President was full of unshed goodness, gentleness, and tenderness.

Perhaps the foregoing paragraphs, taken alone, will create a false impression. Let it not be supposed that the Hiram regimen was only soft and winning. The principal's hand was as firm as his heart was tender; and on due occasion he could be exceedingly severe. He never scolded, never became angry; but his reproofs were all the sterner because of the large background of heart.

Boys of ability and promise came to Hiram in the period of 1856–61, as they still do, having meagre ideas of studies and of themselves. They expected, possibly because they had given the matter small thought, to study two or three terms, and then to go back to the farm or the shop. In time, many of these were touched by Garfield's energizing power. Their minds began to open; new aspirations began to stir in their hearts; and they longed to carry their studies beyond the limits first set. Often these boys had troubles peculiarly their own. Some were poor; some were tethered to home; some wanted courage and self-reliance; some tended to despondency. Mr. Garfield found them out. He remembered his own experience. He seemed to read by intuition a mind that teemed with new facts, ideas, and impressions; that was stirred by a new spirit and power; that sighed for wider and higher activity. These students he aided with his counsel and encouragement. He advised and sometimes expostulated with parents. He took great pleasure in "capturing boys," as he called it; and more than one was saved to himself and to the world by his friendly mediation. A boy who wanted to study, and was poor, called out his full interest.

Mr. Garfield's administration lifted the Eclectic Institute into new prominence. The attendance of students did not indeed increase, owing to the growing competition of other schools, especially within the Disciple pale; but its character was raised, and its influence was enlarged. There was a higher standard of scholarship. Hiram culture became more mature. Students outside of the church were drawn into the school in increasing numbers. Educators became familiar with the name of Hiram and its head. The scope of the work done is pretty fully shown by the principal's report to the State Commissioner of Common Schools, for the year 1858. It is here somewhat condensed:—

"Students since the founding of the Institute, counting by terms, 5,045: males, 2,881; females, 2,164. Twenty-five students have graduated from regular colleges, and ten are now in college. The Board of Instruction consists of a principal and seven associate teachers, four male and three female. The number of students enrolled for the year ending Aug. 31, 1858, by terms, as before, 520. Two have entered college during the year, and eight now here are one year advanced in the college course. Number of students studying common branches, 250; ancient languages, 75; modern, 8; higher English branches, 190.

"The aim of the school is to hold the rank of a first-class collegiate seminary: to train teachers for their duty in the public schools, and to prepare students for an advanced standing in college. One of the peculiarities of the Eclectic is a clause in its charter providing for the introduction of the Bible as a text-book. It is introduced in no sectarian attitude; but the sacred literature, history, and morals of the Bible are regarded as legitimate themes for academic instruction. The Institute is constantly increasing in influence and number of students, and is now more prosperous than ever."

Gen. Garfield was always absorbed and happy in his work, in studies, in teaching, in arms, in legislation; but he ever looked back to his teacher life with peculiar satisfaction. Addressing the National Association of School Superintendents in 1879, he said: —

"I feel at home among teachers; and I may say, I look back with more satisfaction upon my work as a teacher than upon any other work I have done. It gives me a pleasant home feeling to sit among you, and revive old memories."

In the Hiram period he was full of ambition and strength; he had plenty of work and plenty of leisure; his friends and fellow-workers were congenial; and his joyous nature ran full and free. To all who beheld it, his teacher life must remain "a thing of beauty and a joy forever." Let the reader substitute his name for Miss Booth's * in this passage: —

"As the earlier teachers were called away to other fields of duty, their places were supplied by selection from those who had been Eclectic students; and thus Miss Booth found herself associated with teachers whose culture she had guided, and who were attached to her by the strongest ties of friendship. I know how apt we are to exaggerate the merits of those we love; but making due allowance for this tendency, as I look back upon the little circle of teachers who labored here, under the leadership of our honored and venerable friend Mr. Hayden,† during the first six years of the Eclectic, and upon the younger group, associated with me from 1856 until the breaking out of the war, I think I wrong no one of them by saying that for generous friendship and united, earnest work, I have never seen and never expect to see their like again. Enough new members were added to the corps of teachers from year to year to keep alive the freshness of young enthusiasm; and yet enough experience and maturity of judgment were left to hold the school in a steady course of prosperity."

* Almeda A. Booth was associated with Garfield in the Hiram work throughout. The extract is from his address upon her life and character.

† Mr. A. S. Hayden, the first principal of the Eclectic Institute.

III.

GARFIELD, THE STATESMAN.

The great interest that President Garfield always took in education, even after he ceased to teach, and grew to influence as a statesman, is well known to those who have only a general acquaintance with his life. Still, the extent of his interest, and the value of his contributions to educational discussions and literature, are known to very few. He made many lectures and addresses at institutes, at college commencements, and to schools that he casually visited, which were either never published, or were meagrely reported in the local press. He was always a generous respondent on such occasions, and always said something worth remembering. Many a teacher did he thus cheer, many a student stimulate, many a parent arouse to his duties to his children, many a citizen awaken to his relations to public education. He was always keenly alive to politics, and to party politics; but never, in the most exciting times, did he lose his interest in the progress of knowledge and the education of the people.

His efforts to advance the educational interests of the country may be grouped under three heads.

1. — *The State and Education.*

Here his influence was felt along several lines of educational enterprise. These will be mentioned in order.

a. The National Bureau of Education. — Feb. 14, 1866, Mr. Garfield presented to the House of Representatives a memorial of the National Association of School Superintendents, recently held in Washington, asking for the establishment of a National Bureau of Education; also a bill that accompanied said memorial. This bill was read twice, referred to a select committee of seven, and ordered printed. This committee consisted of the following gentlemen: Garfield, of Ohio; Patterson, of New Hampshire; Boutwell, of Massachusetts; Donnelly, of Minnesota; Moulton, of Illinois; Goodyear, of New York; and Randall, of Pennsylvania.

April 3, following, Mr. Garfield reported from the committee a substitute for the original bill. This bill, known as House Bill No. 276, was wider in its scope than the bill submitted with the memorial. Made a law, it would establish a department of education. June 5 and 8, it was debated by the House at considerable length.

In its favor it was argued that the department proposed would be of great service in gathering and publishing statistics and other information concerning education; also, that education in the South needed particular attention, that the States were not likely to give. It was urged against the bill that such a department was unnecessary and unconstitutional, and that it would be expensive. Mr. Garfield closed the debate. He had granted so much of the hour allowed by the rules to other members, that his own speech was cut short by the speaker's hammer. However, in obedience to the earnest request of friends of education, he wrote out his speech in full, and published it for general circulation. The bill was lost, 59 yeas to 61 nays. June 19, a reconsideration was carried by a vote of 76 to 44. On this question, Mr. Garfield said that the measure was framed "at the earnest request of the school commissioners of several of the States." He added, "It is an interest that has no lobby to press its claims. It is the voice of the children of the land, asking us to give them all the blessings of our civilization." It now passed, 80 yeas to 44 nays. Immediately the bill went to the Senate, and was referred to the Judiciary Committee. At the next session, Jan. 30, 1867, Mr. Trumbull reported it back to the Senate. After brief discussion, it passed, Feb. 27. The President's approval, March 2, made it a law.

That this beneficent law was peculiarly Mr. Garfield's work, is shown by the facts recited. He introduced the subject to the House, was chairman of the special committee, drew up the bill, and was its principal champion on the floor. The bill as reported by him was not changed in any particular in either house. What is more, the great change wrought in the temper of the House, as shown by the votes (June 8, 59 to 61; June 19, 80 to 44), was almost wholly due to the persistent zeal with which he urged the measure in private.

Apparently, the Department of Education was in advance of public sentiment; certainly it was in advance of congressional sentiment No sooner was it created than it was attacked. In these later debates the measure was accredited to Garfield's "persuasive eloquence."

One member said it was carried by "dint of personal entreaty." The author of the department defended it point by point. He protested time and again against "putting out the eyes of the government." But in spite of his efforts, the department was reduced to a bureau in the Interior department, the appropriations were cut down, and the bureau was for a time thoroughly crippled. By and by Congress began to deal more generously with this child of its creation; and the appropriation for the fiscal year ending June 30, 1882, is more than fifty thousand dollars,[*] the largest ever made.

The bureau immediately attracted the attention of friends of education in the Old World. John Bright wrote this letter concerning it: —

> ROCHDALE, Jan. 4, 1868.
>
> DEAR SIR, — I write to thank you for sending me a copy of Gen. Garfield's speech on education. I have read it with much interest.
>
> The department now to be constituted at Washington will doubtless prepare statistics which will inform the world of what is doing in the United States on the education question; and the volume it will publish will have a great effect in this country, and indeed, in all civilized countries.
>
> You will have observed the increased interest in education shown in England since the extension of the suffrage. I hope some great and good measure may be passed at an early period.
>
> I am very truly yours, JOHN BRIGHT.
>
> GEORGE J. ABBOT, Esq., United States Consul, Sheffield.

b. The Army Post Schools. — In the year 1866, Gen. Garfield brought forward another educational measure that has already yielded fruit, and that promises to yield still more in the future. May 2, he moved a new section to the Army Bill then pending, as follows: —

> "*And be it furthere nacted,* That whenever troops are serving at any post, garrison, or permanent camp, there shall be established a school where all enlisted men may be provided with instruction in the common English branches of education, and especially in the history of the United States; and the Secretary of War is authorized and directed to detail such commissioned and non-commisssioned officers as may be necessary to carry out the provisions of this section."

He supported the proposition in this short speech: —

> "Mr. Speaker, I only ask a word on that subject. One of the greatest evils known in standing armies is the evil of idleness, the parent of all wickedness, and especially the ignorance connected with it. I hope we shall be able to do something to eradicate that evil from our army, and to do something to make it a patriotic army. In the wearisome months spent in camp and at posts and garrisons, there is nothing for the soldiers to do but to indulge in some deviltry. It is a great evil in the army. I want the enlisted men to have opportunities for culture; and I ask that the Secretary of War shall detail officers fitted for that purpose. I think such a section will relieve the army from this evil. It has been drawn hastily, but I think will commend itself to the country.
>
> "One word more: if it were in my power, I would make a law that every man and woman in the United States should study American history through the period of their minority. We cannot do that throughout the United States generally, but we can enforce it to some extent upon the privates in our army."

The proposed section was added to the bill; it became law, and forms now the substance of Section 1,231 of the Revised Statutes.

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[*] These are the yearly appropriations: 1867, $1,678.67; 1868, $11,757.17; 1869, $23,151.82; 1870, $5,842.50; 1871, $14,606; 1872, $26,669.89; 1873, $34,835.79; 1874, $34,771.07; 1875, $35,562.53; 1876, $35,561; 1877, $32,061.79; 1878, $30,340; 1879, $31,220; 1880, $36,720; 1881, $45,580; 1882, $50,155.

Little or no attempt to carry out this provision appears to have been made until the end of the year 1877. In December of that year, the Secretary of War — "believing this to be an important provision of law, from the full enforcement of which much benefit would accrue, not only to the service, but to the enlisted men, many of whom sadly needed the contemplated instruction" — convened a board of officers to consider what steps should be taken to fully carry it out. This board, — consisting of the Quartermaster-General, the Adjutant-General, and the Judge-Advocate-General, — after full inquiry, reported an elaborate code of rules for the government of post-schools, libraries, and reading-rooms. The report was approved by the Secretary, and announced to the army in General Order No. 24. The results, up to November, 1879, are summed up by Gen. Eaton, the head of the National Bureau, in his report for that year. Since 1879 the results have been even more satisfactory. Rev. Geo. G. Mullins, chaplain of the Twenty-fifth Infantry, is now supervisor of education in the army, charged with the general administration of the law under his superior officers. He is enthusiastically devoted to the work, and the post-schools are thriving under his care.

c. "The Hoar Bill." — President Garfield made a speech on "National Aid to Education," Feb. 6, 1872, in support of the proposition to dedicate the public lands to education. The subject under immediate consideration was House Bill No. 1,043, — "To establish an educational fund, and to apply the proceeds of the public lands to the education of the people," — what is known as the "Hoar Bill." Unfortunately, thus far this beneficent measure has not yet become a law, though steadily growing in public favor; but when it shall finally triumph, Gen. Garfield's early and able advocacy will not be forgotten.

d. Education and the South. — President Garfield studied "the Southern question" profoundly. In a private letter dated Dec. 30, 1880, he wrote, "I have no doubt that the final cure for the 'Solid South' will be found in the education of its youth and in the development of its business interests; but both these things require time." No part of his inaugural is more eloquent than that in which he presented this subject. What is more, in the last private conversation the writer ever had with him (the evening of March 6, 1881), he said, "I am going to keep that subject before me all the time, and shall see that something is done in that direction if possible." His plan was not worked out, probably, when he was stricken by the assassin's bullet; but his heart was fixed upon this as a prominent feature of his administration, — national aid to public, and especially to Southern education.

2.— *The State and Science.*

His views touching this question were always liberal and progressive. In the Ohio Senate he strove to secure the enacting of a law authorizing a geological survey of the State. He submitted a bill for that purpose, and supported it in a lengthy and able report. He also made a similar report upon weights and measures. At Washington he supported every intelligent and practical scheme touching the extension of scientific knowledge, or its reduction to practical uses: the coast survey, the lighthouses, the signal service, the life-saving service, Arctic exploration, and the geological and other surveys.

Every man who went to him with a well-considered proposition pointing in such directions as these found him an eager and appreciative listener. The scientific men of the country, especially those who were in any way serving the government as well as the public, — geologists, botanists, astronomers, engineers, and explorers, — came to rely greatly upon him for securing the appropriations that they needed to carry on or enlarge their work. Nor was this solely because he was for some time the head of the Appropriations Committee. For many years he was a regent of the Smithsonian Institution. Here he was brought into official relations with Agassiz and Henry, both of whom became his intimate friends.

Besides, he made a strenuous attempt, in 1869, to secure a more rational and efficient census law. After months of labor enthusiastically devoted to the subject, he carried his bill through the House, but it failed in the Senate. The law of 1880, under which our only real census has been taken, is little more than his bill of ten years before, reproduced.

Here it may be remarked that no man in either house of Congress, from 1863 to 1880, was more constantly on the outlook for opportunities to do something, by way of legislation, for science, education, and general knowledge. The man who cares to go through the congressional proceedings will probably be surprised to find how often he came forward with an amendment to a bill, or with an original feature, professing to reach some such end that he thought valuable. Some of these failed, but many succeeded.

3. — *Methods and Studies.*

President Garfield graduated in the traditionary college course. In 1854–56 the modern courses of study had not been established, at least fully, in any American college. He was an excellent classical student and teacher. Probably he did not so much excel as a grammarian, but few students or teachers equalled him in reading thoughts out of (or into?) Latin or Greek. After he became absorbed in public affairs, he kept alive his classical reading, more particularly the Latin poets. Once he said, "Early in life men read Virgil; later, Horace." Certainly Horace grew upon him with the flight of years. Since his death, it has been said that his collection of editions of the poet is one of the finest in the country. The last summer, Hon. W. M. Evarts brought him a new and choice edition that he had found in Europe. This was presented to the President on his sick-bed, and gave him much pleasure. But, while thus drawn to the old literatures by taste, appreciation, and association, he could not help seeing that the new conditions — the enormous extension of knowledge, the growth of modern literature, and the development of industry — called imperatively for a widely differentiated education. The "new education" took a strong hold upon his mind. He believed in the new courses of study. He favored a revision of the classical course. He said Greek and Latin must somewhat give way, but confessed at the time that the proposition was like putting his brothers and sisters out of doors. His views on these subjects matured as early as 1867. That year the Eclectic Institute became Hiram College. Naturally, he was called upon to start the old school upon her new course. This he did in the address entitled "College Education," in which he stated his conclusions both fully and strongly. In one direction they are also developed in "Elements of Success in Life." Even at the time when he spoke at Hiram (1867), and before, the era of change in college study had begun. Since that day, the new spirit has reached and influenced nearly every college in the land. Attention may also be called to the short speech before the Washington Convention of School Superintendents in 1879. This shows that he thought the public schools open to much criticism and amendment. Perhaps it is proper to add that his private utterances upon this point were even stronger than those made in public.

The foregoing rapid outline embraces the main features of the subject, "President Garfield and Education." It lacks much of the interest and spirit that detail would give; but if one were to go into detail, a volume would be required. The sketch will show how great and valuable his service has been, both as a teacher and as a legislator, and it will also show how great is the loss to the cause of education, occasioned by his untimely death.

SCHOPENHAUER.

BY AMALIE J. HATHAWAY.

In Bowen's "Manual of Modern Philosophy" we read of Schopenhauer that "Not only is much of his philosophy unsound and pernicious in tendency, but the author himself was eminently a bad man." And further: "In his books he appears as a misanthrope, a pessimist, and an atheist; a hater of the world and of everybody in it, and one who believes in nothing but his own merits and the injustice with which he was treated by his contemporaries."

This is the summary judgment by a Harvard professor.

No doubt the sombre genius of the "Frankfurt misanthrope," who found himself at discord with the world almost from his cradle, wears a forbidding aspect, reminding us of the words of Mephistopheles: —

"I am the spirit that *denies*, and that with justice;
For all that is created were better uncreated:
'T is fit that it should die!"

He discourages, perplexes, confounds us by turns, but never fails to interest; entangling us in what we feel to be an enormous sophism, yet from which escape is not easy, held fast as we are by that brilliant rhetoric, by an eloquence such as philosophy has seldom owned, and withal by Schopenhauer's strong grasp at the truth. To do justice to the man and his thought seems to be an undertaking almost hopelessly difficult. An impetuous, passionate nature follows Schopenhauer to the very sanctuary of pure philosophizing: interrupting, distorting, coloring his thought; seldom permitting the intellectual calm necessary to philosophic speculation in its purity. He is a man of whom Comte might have said, "He thinks with the back of his head," — Comte believing the cerebellum to be the seat of the emotions. Thus all the moral and æsthetic aspirations of the man, all his love and all his hate, impressed themselves upon his philosophy, producing a phenomenon hard to understand and difficult to deal with. Buddhism transplanted to the good old Emperor city of Germany; self-annihilation through asceticism as the central dogma of a modern system of ethics; Asiatic inertia, *Nirvana*, preached to our working age in the face of its intense activity, — all this may well astonish and perplex us. And yet this philosophy, which pronounces our very existence a crime which must be expiated; this philosophy with its paradoxes, its difficulties, and its contradictions; this materialistic idealism which ignores evolution, has proved itself a genuine offspring of the age, in the sway which it exercises, the vitality which asserts itself under various modifications, and the vexation of spirit which it is causing to its enemies.

Arthur Schopenhauer was born in 1788, at Danzig, that ancient commercial centre and outpost on the far Baltic coast, — the sombre, frozen Northeast, which has the breath of Lithuania and Russia upon it. His father was a merchant, — a man of wealth, culture, and travel, but withal of a somewhat harsh and savage disposition; his mother, the Johanna Schopenhauer who afterward became famous in the literary world, and whose house in Weimar was a favorite resort for that charmed circle of distinguished men and women of which Goethe was the centre.

Much of Arthur Schopenhauer's youth was spent in travel, of which both parents were unusually fond. When in 1802 the old Hanseatic city was incorporated with Prussia, then the elder Schopenhauer, a stern republican and anti-Prussian, turned his back forever upon the city of his forefathers, fallen and disgraced as he considered her, and with his wife and boy spent most of his time in travel, residing at Hamburg during the intervals. Thus the boy visited France, England, and various parts of Germany, imbibing everywhere enough of the spirit of land and people to serve as basis for a cosmopolitan culture. His father had destined him for a commercial career, and with his usual inflexibility of purpose, actually caused the boy to enter an apprenticeship. As may well be supposed, the boy chafed and fretted under this, nor did it improve the morose and gloomy disposition which had asserted itself ere this. Soon after the father's death, the youth of seventeen left the hated vocation and began his student life, entering the gymnasium at Gotha. Afterward he studied at Weimar, at Göttingen, and Berlin. At Weimar, the young student did not reside under his mother's roof, at her express desire, although he seems to have spent most of his evenings at her house. The reason, which is characteristic of both mother and son, appears in one of her letters: "I have always told you," she says, "that it was difficult to live with you; and the better I know you, the more I feel the difficulty increase. What repels me does not lie in your heart, — it is in your outer, not your inner being; in your ideas, your judgments, your habits: in short, there is nothing concerning the outer world in which we agree. Your ill humor, your complaint of things inevitable, your sullen looks, the extraordinary opinions you utter like oracles which none may presume to contradict, — all this depresses and troubles me without helping you."

Arthur Schopenhauer took his degree at Jena, after presenting a thesis on "The Fourfold Root of the Principle of Sufficient Reason," a dissertation which attracted much attention, being at once recognized as a truly valuable contribution to philosophic thought. Much elated, the young doctor hastened to Weimar, to present to his mother this first-fruit of his labors. Johanna Schopenhauer turned over the leaves, glanced at the title-page smilingly: "What! the fourfold root? this savors of the apothecary shop." This irreverent trifling enraged the young philosopher; he spoke some bitter words, and parted from his mother never to meet her again.

In 1818 appeared the first volume of "Die Welt als Wille und Vorstellung" (The World as Will and Presentation), Schopenhauer's main work. Contrary to expectation, this work received no attention whatever. Any amount of adverse criticism would have found this philosophic Ishmaelite prepared and ready for the battle; but this silence and utter neglect were a disappointment which never through life lost its keen, poisonous edge. Nevertheless, with a consciousness of his worth which was with him a prime conviction, Schopenhauer undertook to lecture at Berlin. But during this brilliant period, when the Hegel enthusiasm was at its height, there was no room for the pessimist's dismal philosophy. While students from all parts of the world flocked to the lecture-room of the reigning philosopher, while the name of Hegel was on all lips, while the youth of Germany were carried along, head and heart, by the magic of this new revelation, Schopenhauer stood aloof, doomed to obscurity and neglect. After persistent efforts, the lecturer found himself still before empty seats, with no encouragement from any quarter. He retired at length, choosing Frankfurt for his abode, where he lived a misanthropic life, alone with philosophy and his own proud, wounded spirit.

There came a time, however, when the misanthrope became the "Frankfurt sage"; when his rapidly striding figure was considered one of the sights of the city; when interviews with Schopenhauer were sought by distinguished strangers as a high privilege; and when the landlord of the Hôtel d'Angleterre, where the philosopher was wont to dine, answered the question whether he was entertaining any royal guests, with, "Yes, Dr. Schopenhauer." (Helen Zimmern's "Life of Schopenhauer.")

During the last ten years of his life, the philosopher found himself surrounded with admiring disciples, found his works eagerly sought after and commented upon, found friend and foe rivalling to increase his fame. He died in his seventy-first year, in 1859, having enjoyed vigorous health of body and mind to the last. This Indian summer of his life almost took the frown from the brow of the pessimist; still his venomous contempt for Hegelians and academic philosophy remained; his gigantic self-esteem, if possible, increased.

The constant manifestations of what appears an all-absorbing egotism become less reprehensible, or at least intelligible, when we consider Schopenhauer's unlimited, lifelong devotion to his solitary labors, which must needs have been sustained by an intense consciousness of his own worth. He seems to have had a feeling of worship for the productions of his own genius; an offence against them was the sin against the Holy Ghost of philosophy, which could not be forgiven.

Whatever may have been the great philosopher's faults, it is the testimony of his best friends that under a brusk, warlike, haughty exterior, there lay a warm, tender nature, — sensitive, sympathetic, keenly alive to the sufferings of fellow-creatures. (Letters of J. G. von Quandt.) "Genuine misery never appealed to him in vain," says his biographer.

HIS METAPHYSICS.

With some rhetorical license, I have called Schopenhauer's philosophy a materialistic idealism. We will first examine the fundamental, the idealistic aspect.

At the outset, Schopenhauer emphasizes the fact that all philosophy must be primarily and ultimately idealistic. It must begin with the recognition that all immediate certainty is neither more nor less than a fact of consciousness; and a fact of consciousness, as such, an idea. We know no sun, no stars, but only an eye that sees them; no earth, but the hand that grasps and the foot that touches. And even this hand and this foot exist for us but as products of the intellect, as objects of perception; the intellect *constructs* them out of certain primary sensations, — sensations of sight, touch, and muscular action.

Whatever there is in our perceptions of a purely objective origin, this it is impossible to separate from the subjective product, from that into which sense and intellect have transformed it, from the *idea*. The idea is a unity of subject and object, and by no possible means can the two be separated; by no possible means can this world about us be disengaged from the world within us. Whatever object you may mention, — this chair, this table, this gas-jet, — it is an idea still; a product of your mind, fashioned out of your sensations, and containing subjective elements which cannot be separated from the objective correlates. Therefore says Schopenhauer, "Die Welt ist meine Vorstellung"; a phrase which has been translated, "The world is my presentation," "The world is my notion," and which I prefer to render, *The world is my idea.*

Notwithstanding this idealistic position, Schopenhauer still inquires, What is this cosmos aside from my idea? Whether he can legitimately ask that question, I shall not attempt to discuss here. Suffice it to say that Schopenhauer's solution of the problem is peculiar to himself, and proclaimed by him as the prime discovery in all philosophy.

It is clear that it would be impossible to answer the above questions if ideas were all the facts of consciousness, — that is to say, if the intellect were all there is in the human mind; for then the intellect could know nothing beyond its own products. But our ultimate nature is twofold: there is will as well as intelligence; we know our own body in a twofold way, — not only as an object of perception, but as moving, active, *the expression of will,* or in Schopenhauer's phrase, the *objectivation of the will.*

If, then, we ask the question, What is this world of objects *outside* of our perceptions? there is only one of two answers possible: either we are in utter ignorance on this point, and things in themselves are forever unknowable, or we must look upon all other objects as analogues of our own body, and like it, the expression of will. Schopenhauer considers the latter alternative not only as legitimate, but necessary; and thus he announces the second and deeper aspect of his philosophy: *The world as will.*

Leaving aside all questions as to the speculative validity of this proceeding, we will look more closely at this doctrine of the cosmic will.

All nature is but its expression in the various stages of objectivation. The cosmic will in its primary character is absolutely devoid of intelligence; it is the dark, blind impulse that manifests itself in the primary qualities of matter, — inertia, gravitation, an attracting and repelling, the omnipresent forces which build the groundwork of this universe. Upward from these, through the countless forms of inanimate nature, toward life in its richness and beauty, — the flower, the tree, the animal creation, — upward labors the creative will toward the light of intelligence, arriving at its crowning manifestation in the conscious life of the human intellect. *The human brain, with intelligence as its function, is the final, the highest objectivation of the cosmic will.* Intelligence is therefore not a primary fact of our being; the *will is at the core,* the creator of this visible body with its organs and functions. Intelligence is secondary, phenomenal, created by the will; a mere function of a physical organ, — developing, living, and dying with the brain.

In this, then, Schopenhauer is at one with Büchner: "*No thought without brain.*" Nevertheless, he is far from calling himself a materialist, — pronouncing materialism, which looks upon matter as the ultimate reality, an enormous begging of the question. It explains the primary fact through the secondary, the intellect through one of its objects, the known through the unknown.

More than once does Schopenhauer assail the presumptions of materialism with his inimitable satire; comparing it in one instance to the famous Baron Münchhausen, who, in crossing a stream on horseback, keeps himself and his horse afloat by means of his pigtail, which he has thrown forward over his face, holding to it firmly and pulling with all his might.

The cardinal fault of materialism is its uncritical use of the conception Matter. What is matter? Honest materialism must answer, We don't know. Both matter and force, objectively speaking, are but *names* given to the ultimate *unknown.*

For philosophy, matter is like space and time, a mere form of the intellect, a subjective condition of perception. It is that which the will interposes between itself and the intellect, as a condition of its own manifestation. The will is essentially one, the universe as a unit; but by means of matter, space, and time, it multiplies itself to the intellect. Thus matter is the principle of individuation, the condition of all manifoldness, of all phenomenal existence, appearing to the intellect as the principle of all activity. All phenomena are therefore material phenomena; all individual existence is material existence: that is to say, it *depends* on matter for its condition. Here, then, we have the metaphysical groundwork of Schopenhauer's system.

Beginning with the world as idea, it recognizes a deeper reality in the world as will, and finally accepts the world of matter as the actual world, the only world of individual existences, although with the understanding that matter itself is a form of the intellect and a creation of the will.

It would hardly be justifiable to omit a statement, however brief, of Schopenhauer's doctrine of causality.

The relation of cause and effect is not that of force to its manifestation, of will to its expression, but simply a relation of one phenomenon to another, of one manifestation of force to another. Forces themselves do not enter the chain of cause and effect. Objectively, causal explanation gives only a constancy of relations among phenomena; subjectively, it is the law of the understanding which forces us to look upon phenomena as depending upon one another, on every change as conditioned by a preceding change.

PESSIMISM AND ETHICS.

Outside of Germany, Schopenhauer is known chiefly as the great representative of nineteenth-century pessimism. It is our business now to examine as briefly as we may this ill-famed doctrine; and since Schopenhauer's pessimism and his ethics are closely related, I shall consider both under the same head.

The fundamental assertion of pessimism is, that the world, such as it is, had better not be; that it is essentially evil; pain and wrong are its key-notes. This Schopenhauer undertakes to prove both empirically and philosophically, declaring himself to be the first among modern philosophers who honestly admitted and courageously faced this fundamental cosmic fact. According to the system of Schopenhauer, the foundations of pessimism lie deep in the nature of the cosmic will. The will in its tendency to individuation is a blind, irrational striving, without rest and without ultimate object. It is the primary impulse of every creature, the clinging to life, the struggle to exist; or in Schopenhauer's phrase, the will-to-live.

Fundamental as this prime fact in nature, down at the root of things, is also the necessity of pain. Pain is the inseparable companion of the will-to-live, its primary condition. Will springs from desire, which is want, pain; it meets with resistance, which is pain. Satisfaction is but momentary, giving birth to new desires; happiness is transient in its nature,—negative, as it were; pain is positive, the dark background of existence. We must therefore trace the infinite misery of all created beings to the very nature of the will in its tendency to individuation, its striving toward individualized existence.

And this yet for another reason: the condition of creation is destruction; life is built upon death, gain upon loss, and in the pitiless struggle for existence, creature must necessarily prey upon creature. See how the hawk pounces upon the twittering swallow, and how this swallow herself must live on the insect that plays in the sunshine! Suffering, strife, and death are everywhere, since all forms of existence must struggle with each other for the possession of time, space, and matter. The cosmic will, like Chronos of old, lives but by devouring its own children.

Among mankind the struggle for existence is even more terrible to contemplate, for suffering deepens with intelligence. The first natural impulse, the will-to-live, is selfish in its very essence. It is the mere blind impulse toward self-perpetuation, be it at the cost of a world's misery. While the individual will remains unbroken, intelligence is but its servant; knowledge is sought only for its practical value. What will it do for me? is a question which determines every act and the value of every object. But since the selfish will is doomed to ceaseless disappointment, the misery of mankind would be hopeless and endless on the basis of the first natural impulse, the will-to-live.

The redemption of the race lies in its ethical development, and all ethical development is based on the negation of the individual will; or to render Schopenhauer's phrase more nearly, on the self-annihilation of the will-to-live.

As intelligence rises above the individual will, perceiving at once the worthlessness of all striving and the fearful character of the struggle; when the infinite misery of existence dawns upon it as the prime fact in nature; when self is forgotten in the contemplation of the whole, — then the pursuit of happiness is recognized as an illusion and an evil, and the will-to-live as humanity's great guilt. In this lies, according to Schopenhauer, the ethical value of pessimism. Its deep, realizing sense of the universal suffering; the disposition which takes upon itself the grief of the world, feels it as its own; the recognition of the worthlessness of all individual striving; the condemnation of the individual will, — all this makes of pessimism the basis of the highest moral development, preparing the way for self-renunciation and moral regeneration.

Thus, not only Buddhism but Christianity is essentially pessimistic. Christianity came to mankind with an intense conviction of the worthlessness of the present world, an all-absorbing sense of its wrong and its pain and its guilt; only that Christianity lights up the gloom of the earth-life with the hope of heaven. Optimism, according to Schopenhauer, is not only shallow and false, but absolutely wicked, being a mockery at the measureless woes of existence.

The ideal of moral perfection is asceticism, the extreme of self-renunciation. It is the putting into practice of the conviction that the pursuit of happiness is a chimera and an evil; that existence itself is a wrong which must be expiated; that for humanity, as well as for the individual, not to be is better than to be. The history of asceticism is given as replete with ethical instruction, and as pointing to an origin deeply rooted in the nature of the human soul, deeper than any dogma or creed.

Martyr and saint, hermit and fakir, are brought before us; in a variety of garbs the same spirit, and everywhere bearing the same stern significance. Thus the monk of La Trappe, pale, emaciated, worn to a shadow by a life of privation and a discipline of terrible severity, kneeling to ask the blessing of the worldly stranger, — this sad-faced monk is a spectacle not only touching, but awe-inspiring in the grandeur of self-abnegation; and this even in the midst of our nineteenth century with its optimistic rationalism. In pleasure-loving France, this order of La Trappe, of all the monastic orders, has preserved itself through the centuries in its purity and its appalling severity; a phenomenon, to the world-deep significance of which only pessimism can furnish the key.

It might be supposed that Schopenhauer, in regarding annihilation of self as the crowning phase of ethical development, advocates suicide. This is far from being the case. Suicide is not an act of self-abnegation, but of self-assertion; it is a violent struggle to escape from pain, not its quiet acceptance; it is the disposition which rebels against the burdens of existence, not the calm renunciation of every desire to exist. Suicide and sainthood are opposite poles.

But what matters it? may be asked. If death is the end, what matters it in what spirit a man die?

The answer involves an examination of Schopenhauer's doctrine of immortality; a doctrine which in its lofty mysticism is worthy of the Bhagavad Ghita, and which is set forth with an eloquence and a poetic beauty which will be entirely lost in a brief abstract statement.

The intellect dies because it is the function of a material organ; the will is indestructible. Consciousness passes away with the brain, but the will which created the body and built the brain is immortal. The only question is, whether it shall remain individual will, reassert itself in other forms of existence, or whether it shall deny itself and return to the all. Suicide achieves the former, self-abnegation the latter. In self-abnegation the will becomes impersonal, anti-individual, anti-cosmic, leading to the termination of the cosmic process, the annihilation of the present world, to Nirvana.

What Nirvana is, Schopenhauer judiciously does not presume to know. It is merely the final negation which crowns the cosmic process. He charges us to remember, however, that all negation is relative; absolute nothing is inconceivable; nothing is only the negation of something as known to us.

Thus Nirvana is only the negation of existence, such as we know it. What it may be in itself, on its positive side, — this transcends the possibilities of human thought; we have reached the boundary line where all questionings must cease.

But a mystic foreboding, a deep inner sense of Nirvana — the life above life — is ever present to the poetic consciousness of mankind. Only the small, narrow, selfish mind has a haunting fear of death; the good and the great feel their immortality.

I have endeavored to present Schopenhauer's daring scheme in what seemed to me its most rational aspect, giving as fair and careful a statement of the pessimistic doctrine as is possible within a brief space.

ÆSTHETICS.

Schopenhauer's æsthetics have been dwelt upon by critics as a region of brightness in the midst of that dark philosophy. There is a wealth of the art spirit here, which lifts the philosopher for a time from out the shadows of pessimism. At the base of the æsthetics, we find the Platonic doctrine of ideas; a doctrine of which there is a full recognition, and one might say a loving elaboration.

The cosmic ideas, — that is to say, the permanent forms or types which reveal themselves in the multitude of created beings, — these are the primary, most immediate manifestations of the creative will. While nature makes no account of individuals, she has great care for the preservation of types. Types are exempt from the law of destruction, because they have a reality deeper than time, space, and matter. Like the sunbeam, which is motionless, though cutting across the path of the tempest; like the rainbow, which hangs over the cataract, unmoved in its serene beauty, while the drops which give it birth are breaking and dying every instant on the foaming surface below, — thus stands the eternal idea, the typical form, amidst the myriads of individuals whose life is but a day.

Every object in nature is beautiful in proportion as it is an adequate realization of its idea. Imperfections and deformities arise from conflict, — the conflict for the possession of matter; from the resistance which each lower form of existence offers to the realization of each higher.

The object of art is to anticipate nature's intent, to penetrate through all individual imperfections to the idea, and to reveal this in its purity. Nature is beautiful only to the eye that reads her thoughts, that which she is striving to express. Flower and tree and mountain and cloud speak a magic language only to the mind that carries within itself the key by which to interpret the individual symbols. But to genius alone does the idea reveal itself in its depth and its power, inspiring hand and eye and brain in the creation of what stands before us at last as a work of art. Thus the artist impresses upon the rigid marble that beauty of form which nature in a thousand attempts failed to realize; placing his statue over against nature, as if to say, "This is what you were striving to tell." "Yes, it was this," echoes from the mind of the beholder.

As the contemplation of the idea is the birthright of genius, so is its condition the emancipation of the intellect from the will; that is to say, a complete forgetting of self in the object. Every personal desire, all personal interests, all personal conditions must be forgotten when the art spirit takes possession of the soul. To the small, self-engrossed mind, the beautiful does not exist, — neither in nature nor mind nor art; what it requires in objects is *service*, just as its own condition is one of servitude to the selfish will.

But the object of art must be contemplated solely and purely in itself, out of all relations to the beholder and his interests. What *service* will it perform? is a question which in the art world has no place. Thus, where genius sheds its radiance, it is the same whether a sunset is contemplated from the palace or from the prison; for *genius is freedom:* it dwells in a world apart, a world where pain and unhappiness cannot enter; a world severed and far removed from that in which the will to live, with misery in its train, is the reigning power.

It is hardly needful to say that Schopenhauer does not represent the ecstasy of genius as a permanent condition, even to the most privileged. To the *best life* even, those visits of the art spirit are rare and brief.

In the classification of the arts, Schopenhauer does not differ essentially from the despised Hegelian school, excepting in the place he assigns to music. Thus architecture, sculpture, painting, poetry present an ascending scale, in accordance with the nature and scope of the object matter. Architecture embodies the lowest stage of cosmic ideas, the drama the highest. But in the interpretation of the special arts, the Schopenhauer characteristics become prominent.

The omnipresent qualities of crude matter, the rude volitions of the stone, as it were, — gravity, inertia, resistance, the conflict and the balance of primary forces, — these find their expression in architecture.

In the drama we have the highest cosmic phenomenon, humanity in its ethical development. Here the art spirit gives expression to the deepest and the truest phase of the pessimistic consciousness. The conflict of the will with itself, the strife between the individual will and the universal will, is contemplated in that ultimate phase where it takes on the character of the sublime. The intensity of suffering reaches a point where it ceases to be suffering; pain is lost in greatness, grief in the loftiness of resignation. At the crowning moment there comes a hush, a spirit silence, where pity would seem trivial.

> "To live is not the highest good,"
> (Das Leben ist der Güter hochstes nicht,)
> (Schiller, "Braut von Messina,")

is the voice which comes from out the stillness; and behind it all is a vague sense of Nirvana, with its promise of compensation.

"Just as in music the chord of the seventh demands the dominant chord," says Schopenhauer, "so does tragedy demand an existence other than this, a world other than this." The return to harmony, which the present world refuses, is an imperative need, which at the moment of the tragic catastrophe becomes also a supreme conviction.

For music the hierarchy of the arts has no place, because music is deeper, more comprehensive than all. Music is not a representation of the cosmic ideas; but it is, like the ideas, an immediate manifestation of the cosmic will. A Mozart does not look outward into nature, studying her objects, carefully noting her features, in order to produce her counterpart, a sound picture. He may let nature's life sink deep into his soul, but he does not imitate her. Only artificial music is imitative. The sound world has a reality of its own; it is co-ordinate with the light world, the antitype of the visible cosmos, a revelation of the will in the fulness and richness of its being. Music can therefore be referred to no standard outside of itself; it cannot be placed over against nature for comparison. Its *laws* are its own; its *objects* are its own; it cannot be said to *resemble* any object in nature, but it has a mysterious correspondence with the *all* of nature. And this mysterious correspondence manifests itself not only in special creations, in the symphony or the oratorio, but in the whole framework of the musical art. Harmony, dissonance, rhythm, melody, even *pitch*, all have a counterpart in the visible world.

However, it is not its correspondence with nature about us, but with nature *within* us, which gives to music its deeper, intimate expressiveness. The human will itself, its love and its hate, its pain and its joy, its striving and its repose, all find a response here, transformed into an existence above existence, a life above life, where pain becomes beauty, strife becomes rest.

We are reminded here of a word of our great Beethoven:—

"I have no friend; I must live with myself alone; but I well know that God is nearer to me in my art than to others. Neither have I any fear for my music; it can meet no evil fate. He to whom it makes itself intelligible must become freed from all the wretchedness that others drag about with them." (Bettina.)

CRITICAL ESTIMATE.

You have perceived that in this brief outline of a great philosophic system, I have refrained from criticism, excepting so far as criticism is implied in the manner of statement. In venturing now upon somewhat of a critical estimate, I am well aware that I am liable to commit an intellectual impertinence: only the great can judge the great. Nevertheless, we all judge so far as we think; intellectual independence requires a critical attitude; and therefore, whether right or wrong, I must make the attempt.

I shall examine mainly the psychological aspect of the system; for a cosmology which is confessedly anthropomorphic, making man the measure of the universe, must stand or fall with its psychologic truth. If the explanation of the universe is to be sought in the nature of the human mind, then the first thing needful is an adequate knowledge of the nature of the human mind.

As a student of psychology, Schopenhauer lacks both philosophic rigor and scientific carefulness. With all his deep glances into human nature, a rare intuitive power, great acuteness of observation and independence of interpretation, we find him capricious, extravagant, even fantastic, besides under the influence of a strong subjective bias. A most fatal characteristic is a tendency to disintegrate, —a fixing of distinctions and a neglect of fundamental unities. Distinctions are made positive,—absolute, as it were; unity appears only in negation.

To abolish the old-fashioned conception of a human soul, of mind in its substantial unity, is a disposition which Schopenhauer shares with many brethren of a later scientific school. There is a will, an intellect, a consciousness; there is reason, understanding, sense; but properly speaking, no human soul of which these are the manifestations. This tendency to make war on the time-honored conception of spirit manifests itself fundamentally in that separation of the intellect from the will which is the key-note of the entire system, —and, as it appears to me, also its fundamental error.

Psychologically, this isolation of faculties is utterly untenable.

The recognition of an organic unity of psychic processes is one of the main results of modern psychologic research, from Hegel down to Spencer and Lewes. The simplest mental product is revealed by analysis as involving the co-operation of every power of mind to which psychology has as yet given a name. And those fundamental aspects of the psychic life which we have been wont to call primary powers, — knowing, feeling, willing, — these are so intimately related, so absolutely interdependent in their exercise, that it is impossible to hold them apart, even in abstract analysis. Wherever we imagine to have the one alone, a closer scrutiny reveals all three; wherever we attempt forcibly to isolate one, it eludes our grasp, for in separating we destroy it. *Will severed from intelligence is not will, such as we know it in consciousness.*

Nor can intelligence be emancipated from the will. There is no region of the human intellect from which will and want can be banished; there is no intellectual act of which love and hate are not the impelling motives; beauty and truth are sought with persistent striving; action is the life of the intellect; inertia, passive quiescence, its death. Art and philosophy supply human wants as real as those of the lower self, — a soul hunger which may become as intense as that of the vital structures.

"The emancipation of the intellect from the will" is, in fact, a rhetorical phrase, full of suggestion indeed, but which, translated into ordinary language, means simply the action of the intellect as independent of lower selfish motives.

(Let it be pointed out here that Schopenhauer's "will" includes the emotional nature, a fact which ought to have been set forth more fully elsewhere.)

The "creation" of the intellect by the will, psychologically considered, is another instance of the seductions of a rhetorical genius. It may be recognized as simply an extravagant mode of stating the fact of a close relationship between intellectual and emotional phenomena; a relation which may take the causal aspect, when we consider the sense of need or the love of truth as the basis of intellectual effort.

Logically and metaphysically, the creation of the intellect by the will is a doctrine absolutely untenable. The rational intellect proving itself the product of an irrational will is a logical anomaly, a begging of the question more to be condemned than that of simple materialism, because trespassing on deeper philosophic ground. Metaphysically, it is an ignoring of that prime philosophic necessity which demands a recognition of the ultimate identity of potentiality and actuality.

Returning to the psychological aspect, it will readily be admitted that Schopenhauer's psychology can hardly be considered a satisfactory basis for a philosophic system. His "cosmic will" is not the analogue of the human will; it is a hypothetical principle, as incomprehensible, as unknowable as matter and force.

If Schopenhauer's speculative principle is legitimate, — that is to say, if it is legitimate to assume a fundamental analogy between nature and mind, between the world without and the world within, — then the same speculative method which constrains us to view the world as will would, on a truer psychologic basis, constrains us to view it also as the expression of intelligence. This is consequently the position which Hartmann, the historic successor of Schopenhauer, actually takes; his "cosmic principle," though viewed as unconscious, is will *and* intelligence.

CRITICAL ESTIMATE (PESSIMISM).

It must be admitted that Schopenhauer's pessimism is deeply rooted in his system. Both the extravagance and the truth of his psychology and metaphysics stand out in bold relief in this pessimistic scheme. The speculative validity of the scheme is therefore of the same character with that of the entire system; the same must be said of its psychological basis.

Empirically, it is impossible to substantiate either the truth or the falsehood of pessimism. *Does* evil actually predominate over the good? *Is* there more pain than happiness in the world? These are questions suitable for debating societies rather than for scientific research. The range and complexity, the indefinite character of the data preclude the possibility even of an accurate estimate. There is no standard of measurement for a feeling. Thus Hartmann's attempt to establish a scientific basis for pessimism is probably as loose and flimsy a fabric as ever disgraced the philosophic genius of Germany.

In Schopenhauer's plea the scientific claim is less prominent; its character is pre-eminently poetic. It comes with a pathos and a power, a lofty impressiveness, which for the time being overwhelm the student and silence the objector.

A marked and most significant feature is the strength of the ethical element, commanding the admission of principles which in their development must lead pessimism to destroy itself. One is the recognition that *happiness is not the chief end of existence;* another, that *pain is not essentially and necessarily an evil.*

The higher ethical life, with Schopenhauer, is *more* than a search for happiness; the most contemptible and the most *barren* of lives is that which is spent in the pursuit of pleasure. It is only when self is forgotten in some high object that life reveals its beauty and its worth.

The ennobling nature of pain is vividly set forth by Schopenhauer; there seems to be a recognition of what the poet expresses:—

> "Enough to know, around us not in vain
> The troubled tides of being darkly press;
> Grief, care, want, hope deferred, love's ache and strain,
> The passions' stress:
> So grows the soul immortal, wrought through pain
> Into all comeliness." (Art Life.)

But Schopenhauer's intense pessimistic consciousness, his sympathetic nature overshadowed by a world's suffering, his peculiar theory of the human will, are at war with a healthy ethical sense. Hence the negative character of his ethics, the exalting of the passive virtue of resignation and the inertia of asceticism. All active striving being looked upon as selfish and wicked; the will to live, the desire for individual existence being looked upon as the essential evil of the universe, —all ethical development lies in the direction of self-renunciation, the negation of individual existence. All that mankind holds high and dear, ethically, is with Schopenhauer only a negation, only a step forward toward the annihilation of a world which had better not exist.

This whole wide universe, in fact, contains within itself no possibility of salvation, no striving toward the better, no principle of progress, no evolution of the spirit; not one step forward does it move toward the realization of an inherent ideal. As with the individual, so with the world: the possibility for the better does not lie within it, but beyond it; its redemption is its annihilation.

A heroic consistency cannot be denied to this; with giant fearlessness, Schopenhauer is true to his postulate to the last.

But after all, the life of the spirit in its beauty and its power does not reveal itself to the pessimist. It is not without significance that Schopenhauer banishes Psyche from his system, although it is easy to see that his strong Germanic spirit feels her presence and would fain recognize her in her disguise. How it is that as we ascend step by step to that higher life which is possible to the human soul, the facts and laws of the lower nature lose their significance, are transformed and reversed, —of this there is little recognition in this pessimistic scheme; how in a purely intellectual and spiritual sense the struggle for existence loses its poisonous weapons, loses the character of remorseless strife, since it is no longer a struggle for the possession of matter, where creation must needs rest on destruction.

Intellectually, my gain is *not* another's loss. Genius supplies the wants of thousands in supplying its own. Those Athenian sculptors who two thousand years ago wrought out their spirit cravings in the inert marble, — these still across all the centuries awaken and appease the hunger for the beautiful. All ideal creations, all spiritual treasures, have this character of inexhaustible wealth; all works of genius have this in common, that they are blessings both to receiver and giver. Truth and beauty, like the seven small loaves and seven small fishes, may satisfy the hunger of the multitude, and still become not less but *more*, like the basketfuls that were left after that repast by the Sea of Galilee.

And this wealth of the spirit, this all-compensating power, manifests itself all about us in a thousand ways, if we only have the eyes of the spirit to see. Kohl, in his account of Lake Superior Indians, tells us of an Ojibway chief, who was famous among the tribes for his knowledge and wisdom. During his childhood the great chief had suffered much from neglect, had been left to starve and freeze in a wretched state; yet he was wont to say afterward that he did not mind it, for with all the hunger and cold and loneliness, he had always had — beautiful dreams.

Pessimism can maintain itself only by disregarding the spiritual aspect of life, — its compensations, its wealth, its beauty, its power, its hope. Just so far as it is conscious of these, it is at war with itself, just as it is at war with the deeper poetic sense of mankind. Poets and women will never adopt Schopenhauer's dismal creed. Thus the great philosopher is accused of contempt for womankind, by way of revenging himself upon the sex that will not believe in pessimism.

We have seen that Schopenhauer's æsthetics are built on the Platonic doctrine of ideas. The value of that doctrine, and its difficulties from a scientific point of view, I will not discuss here; that it fits ill into the system of Schopenhauer is generally recognized. It is in fact the poetic *need* of Schopenhauer, declaring itself at war with his intellectual system. Its adoption into the *ethical* scheme would have transformed the entire system. In the recognition that just as the beautiful in nature is the adequate realization of an idea, so the beautiful in the mind of man — the good — is to be conceived, not as a negation of the individual, but as its most perfect realization, — in this recognition pessimism would have reached the transformation which Schopenhauer now, in his loftiest moods, suggests.

Just as to the human soul, pain may become an ennobling, redeeming power; just as in art, pain is transformed into beauty: so would pessimism have been lost in a larger cosmic harmony; redemption would be recognized, not as destruction but as evolution.

There remains now a brief inquiry into Schopenhauer's relation to recent German thought. What place does he hold? To what extent does he govern? What is the secret of his sway? There can be no question that during the last twenty-five years Schopenhauer's influence has been very great. The extensive Schopenhauer literature which has sprung up bears witness to this. The great pessimist seems to have opened a new philosophic era in this, that he has made his works accessible to the German mind at large, awakening an interest and obtaining a foothold outside of that aristocracy of thought which has its centres at the universities. His rhetorical qualities are such that according to Frauenstädt's remark of questionable felicity, Schopenhauer's works are read even by soldiers and cultivated women.

It cannot be claimed, however, that the secret of the philosopher's success is his literary style alone. His peculiar blending of idealistic philosophizing with prevailing scientific doctrines is probably not the smallest element of his power. That crude materialism is fast descending from the high places, degenerating, according to Schopenhauer's winged phrase, to a philosophy of apothecary apprentices, and seeking refuge in the halls of the communists, — this in Germany is an unmistakable fact, a development in which the great pessimist has undoubtedly had a share.

Those who ascribe Schopenhauer's success mainly to his falling in with the pessimistic current of the time are probably not far from the truth. The statement must, however, be taken with some modifications and allowances. The followers of Schopenhauer in Germany are by no means confined to those pessimistically inclined. Even Frauenstädt, who has made the interpretation and exposition of our philosopher's thought a life work, does not accept the pessimistic view.

That the pessimistic currents of nineteenth-century thinking are deep and strong, flowing in channels diverse, and accompanied with growing degrees of consciousness, cannot be denied. Philosophic Germany must needs give a philosophic expression to a consciousness which is after all but the natural residuum of a Christian cosmology robbed of its heaven, — the transcendental beyond. Take out the hope of heaven, and Christian hymns and sermons without end tell us the story of a world-despairing pessimism. That the pessimistic consciousness of Germany has found so noble and lofty an expression as Schopenhauer has given it is, after all, creditable to the German genius. Only creed-bound bigotry could find a pernicious tendency in Schopenhauer's ethics.

A closer and more comprehensive study of nineteenth-century pessimism as a philosophic movement in Germany, I reserve for a future occasion.

MORAL INSTRUCTION IN PUBLIC SCHOOLS.

THREE things appear to be needed in order that the subject of instruction in morals may receive proper attention: —

I. A more vigorous and intelligent public sentiment.

There is no question but that the general sentiment of the public is thoroughly in favor of education, but the idea of education is too narrow in its scope and limited in its results. The true object of education is to draw out and develop the whole nature of man. This nature is threefold: the physical, the intellectual, and the moral. Complete education, therefore, is impossible until there is a symmetrical development of the three in harmony with each other. Undue attention to the first may produce a fine physique, but leave the man a dunce and a villain. Undue culture of the intellect may produce a philosopher, but leave him an invalid physically and a knave morally. There is danger that the culture of the mora nature only will perhaps make a good man, but so good as to be good for nothing; good enough to die, but not good enough to live. It is only when each element receives its proper share of attention in its relation to others that we can have true education. No argument is needed to show that the public sentiment is not up to this standard. Until recently, education has been held to embrace mental culture almost solely. Of late the physical nature has received, perhaps, its full share of attention. The demands of the moral nature, however, still fail to receive proper recognition. We have reached the old classic standard, a sound mind in a sound body; but we are far short of the Christian position, which would add to this moral character. We are not only unphilosophical in this, but the verdict of history is against us. Classic culture could not save ancient society, still less will it suffice for the more intense and complicated life of to-day. The verdict of history is equally clear, that among the upbuilding and preserving forces of human society, moral principle has always been foremost.

Our position is also emphasized by recent painful experiences in commercial life. There has been no lack of those who were intellectually qualified to fill important positions, but a painful lack of those who could be trusted in them. It has been said that the salary of a young man on State Street would be doubled if there could be absolute assurance of his perfect honesty. A prominent Boston merchant writes, "There are many business men who are asking more and more about the character of those in their employ"; and he adds this testimony: "Twenty years ago there was a large house on Franklin Street enormously rich, but the firm were profane, played cards, etc.; all the young men brought up in those surroundings have proved miserable failures. There was another business school of the exact opposite kind; and all those who had their training under those influences have succeeded, and are to-day among our best merchants." There can be no question, therefore, that the demand of the age is emphatically for instruction in morals. We lay it upon the ministry, the churches, and all good people to aid in the creation of healthy and vigorous public sentiment on the subject, so that the phrase "good moral character" shall no longer mean, as now, simply the absence of known gross or criminal offence.

II. More law; more properly, perhaps, different law is needed.

What is the relation of law to education? Plainly, it is so to regulate it that the interests of the state shall best be conserved. It is an advantage to the state that its citizens should possess sound bodies; it is therefore the right and duty of the state to provide so far as possible, by appropriate legislation, for the public health. It is also an advantage to the state that its citizens should be intelligent; it is therefore the right and duty of the state to promote intelligence so far as it can be done by law. It is even more to the advantage of the state that its citizens should be well behaved. Herein is the peculiar province of law: it is almost wholly concerned in regulating the conduct of peoples. But this is also the sphere of morals.

If, then, the law has any relation to education, it is first and foremost to the department of morals. Mr. Mill says, "Government is to increase to the utmost the pleasures, and diminish to the utmost the pains, which men derive from each other." Its double province, therefore, is to restrain the ill behaved and encourage the well behaved. This latter relation it sustains to education. Horace Mann once said, "All the power of the mightiest nation can never prevent bad men from doing wrong. The only way to diminish the amount of wrong in the world is to diminish the number of bad men." President Picard, of Iowa State University, says, "A citizen kept from becoming a bad man is worth more than a citizen reformed"; and we venture to add that it is much easier to prevent one from becoming bad, than to reform one after he has become so.

It would seem to be a just remark that if the state would do more for the encouragement of virtue, it would have much less to do in the repression and punishment of vice. This much at least is clear; the first duty of law in its relation to education is to promote the moral culture of those who are to become citizens. This, however, it does not do at present.

The laws recognize the importance of this subject, but in a very general way. They need to be more specific. They were sufficient for the time when they were enacted: our fathers did not need enforced physical culture; the stern realities of their lives left no room for gymnastics. So of morals: laws which advised or even permitted the teaching of them were quite enough; they would have taught them without law, — nay, more, in defiance of law. It was that which made them what they were. But all this is changed. The reaction from their extreme position has carried us to an opposite extreme. And although the law enjoins teachers to impress upon those committed to their care the general principles of morality, it does not, except in four normal schools, order them to do it specifically. The very natural consequence is that they do not do it. The cause of this is clearly given by Mr. Cogswell, the efficient superintendent of schools in Cambridge: "Success in teaching has been measured largely, if not wholly, by results of intellectual training; not because moral training has been deemed of less importance, but because the results could not be made apparent. Percentages of correct answers, while they may not show the best intellectual training, do to some extent indicate the ability of the teacher; but as growth of character cannot be represented on paper, this element has not been sufficiently considered in estimating the value of teachers." Let the law be made as specific in regard to morals as it is in regard to arithmetic and geography, and this objection would no longer exist. If the law has the right to order the teaching of the latter, much more has it the right to order the teaching of the former. The only change required here is that the teaching of morals shall be mandatory, the same as the common branches of knowledge. This change should be demanded until it is secured.

III. Teachers of a higher character are needed.

The law requires that teachers of high schools shall be competent to give instruction in moral science. But for one to be really competent to do this, he must be himself moral. An immoral man may teach mathematics, it may be, but he cannot effectively teach morals. Ex-Governor Rice once said, "If our schools are to be the safeguards of our Republic, as we fondly trust, our teachers must feel that upon them rests the responsibility of so training the youth committed to their care, that they shall go forth from the schools imbued with the principles of sound morality."

We would by no means underestimate the quality of our teachers:

many of them leave nothing to be desired; but on the other hand, many leave much to be desired. They possess sufficient information, it may be, but do not bring heart and soul to the work. They simply serve so many hours for so much money. And by what right do we demand more? The highest right.

If we put a choice block of marble into the hands of the sculptor, we have a right to something more than so many days' work of a stone-mason; we have a right to his genius. He must put the beautiful shape born in his artist's soul into the stone, and give us that, before he has fulfilled his contract. And so when we put into the hands of the teacher material a thousand times more precious than ever slept in the mountains of Italy, we have a right to demand that he shall have within his own soul a character which will be a fit model for his work. If it be objected that the many cannot attain to this standard, then let them saw wood, shovel coal, or be politicians, but let them not dare demand the privilege of stamping their unworthy selves upon the plastic mind of youth! It has been recently reported that some of the teachers in a city, not in Massachusetts, go to their work in a state of intoxication. This is doubtless an extreme case, but it shows the possibility of the danger.

Too great watchfulness cannot be exercised here. There is hardly a moral qualification demanded of the preacher which should not likewise be demanded of the teacher. Their work is almost equally sacred. We should commence here with the appointing power, and demand of our committees that the first inquiry concerning every candidate shall be as to his character: Is his heart pure and warm?

IV. A text-book is needed.

When the three foregoing points shall have received attention, manuals will be needed for reference and general purposes of instruction. We shall not take time here to discuss this matter largely, because when such books are needed they will be furnished under the ordinary laws of competition. It will be of little service to produce them until there is sufficient demand to insure their use. The "imprimatur" of a society or of any number of societies will not create such a demand or insure such a use. Let there be a public sentiment that will demand it; let there be laws that will order it; let there be teachers who are really competent, — and the books will be forthcoming. There is no more difficulty in preparing good text-books upon this subject than upon any other. Religious prejudices should be avoided, and they easily can be. The work should embrace only the simple, fundamental, ultimate principles of moral duties which are demonstrable by reason and experience; *e. g.*, the laws of our physical, social, and civil life, and the duties to ourselves, to each other, and to the state, growing out of them. This could easily be made interesting and profitable. A healthy and vigorous public sentiment upon this subject is not only the first thing needed, but that which when secured will cause the other things which we have mentioned to follow of themselves. Given such a sentiment, and the desired laws, teachers, and books will follow. Just here, then, is the duty of the hour in this regard. Let the pulpit inculcate it; let the press agitate it; let the platform discuss it; let the ballot-box demand it, — and the work is done. The importance of the matter cannot well be exaggerated. It is one of the nerve centres of our national, social, and individual life. Let it be touched with the finger of truth, and the remotest extremities will be electrified with life-giving power.

The times are not only ripe for reform in this regard, but the need is measureless. The conflicting elements of our national life are growing every day more numerous and dangerous, while from every foreign soil are being gathered elements of discord more numerous and dire than ever entered into the witches' caldron in Macbeth:—

"For a charm of powerful trouble,
Like a hell-broth boil and bubble."

The only solvents for such a seething mass are truth and virtue. Why should there not be, side by side with the glorious awakening of interest in home missions, a corresponding one in moral culture?

If the diverse currents which are gathering in our political atmosphere in the West are permitted to come together, there will be cyclones which will rend our institutions to fragments. The only powers which can keep them apart, and turn them into channels where their force can be utilized, are moral and religious; and the moral should be a powerful auxiliary to the religious.

Of all the work of education, this is not only of the most intrinsic importance, the most imperiously demanded by the exigencies of the times, but it is also the most lasting. Why cultivate most that which is temporal and perishable, and neglect that which is imperishable and immortal? Mr. Ruskin says, "Michael Angelo was once commanded by Pietro di Medici to mould a statue out of snow, and he obeyed the command." Thus his sublime genius was wasted upon what melted under the first sun, and all future ages were defrauded. Are we not doing even worse when we permit our teachers to mould statues of snow instead of those more enduring than marble? Was not that other artist wiser, who, when asked why so careful with his work, replied, "I am painting for immortality"? More than in the case of any other artist, this should be the aim of the teacher.

TOPICAL v. INTERNATIONAL BIBLE STUDY.

BY JAMES E. VOSE, A. M.

"Is our present International System of study in accord with the needs of our Sunday schools, and the correct principles of Biblical education?"

I. In answering this question emphatically in the negative, there are certain excellent features in our present system to which due credit ought to be given.

1. System is better than unsystem in anything, and this has the high honor of being the first really methodical plan of Bible study ever attempted on any extensive scale.

2. This marked advantage has led to a very universal adoption, so that wherever one may be travelling he knows what the subject of the Sunday-school lesson is to be, and is able to look it up in whatever papers may be at hand, and to enter a class with some intelligent enjoyment of this important service.

3. The great success of the plan has produced a flood of "helps," so called, — most of them utterly worthless, to be sure, but a few of great value, and all in such cheap and popular form that no one can have any excuse on that score.

4. By stimulating combined effort of teachers and others, enthusiasm has been wrought up, till it may be doubted whether there was ever in our churches so much interest in Bible study as at present.

5. A very important count in favor of the system is the great impetus given to the study of Biblical history, geography, antiquities, etc., so absolutely essential to any proper interpretation of the sacred narrative.

II. In all these and other particulars, the International System has done a very great and beneficent work, and all honor is due to those earnest workers who have brought it to this remarkable success. Still the question remains whether, having arrived at its present height, there is not one step farther which our Sunday-school leaders ought to take to bring it squarely abreast with the spirit of the times. To answer this, some of the shortcomings of the system need to be very plainly noted.

1. In the first place, the tendency is to magnify the machinery of the work entirely beyond the work itself. A little text of Scripture is printed in the smallest type in some corner, and then every conceivable somersault is turned from it that leaflets, pictures, lesson-

monthlies, blackboard-exercises, and the rest, can be tortured to display; and programmes, outlines, golden texts, questions, illustrations, side-lights, Bible-readings, reviews, concerts, are paraded and paraded, till the poor little bit of Scripture is as utterly lost as the Babes in the Wood. It seems to be entirely forgotten that no two schools or classes need exactly the same programme or work, and that fastening all down to one cast-iron routine is an utter absurdity. Imagine all the public schools of the United States grinding out, say, arithmetic in this style! But our worthy lesson-mongers seem to take it for granted that the rest of us are fools, and must have every detail cut and dried for us or we can do nothing. I am confident that in this particular, schools are successful just in proportion as they do their own needed work in their own independent way.

2. In close connection with the foregoing is the vast amount of charlatanry which our present system induces. Glib-tongued men, no doubt with a good purpose, possibly with a good idea, come together in conventions and parade their little hobbies to the astonishment of the multitude. Then everybody rushes off to try the same thing at home, only to make a farce of it and a failure,—or worse yet, to succeed; for there is no use in forgetting, after all, that "there is no royal road to geometry," and that the only way to learn, whether geometry or Bible or anything else, is by downright painstaking study. It is entirely safe to say that in spite of much that is good, nine tenths of all our "convention work," "methods," "class-drills," "blackboard illustrations," etc., etc., is the merest clap-trap, and of no educational value whatever. It serves to create a furor, but is entirely at variance with all true ideas of study, and gives neither religion nor knowledge of the Bible. And it may be seriously questioned if, with all our vaunted progress, there is to-day in our churches anything like the real, sound, healthy Biblical knowledge that there was in those of a generation or two ago.

3. So, too, in our so-called "helps": take out the one hundredth that is really good and helpful, and I doubt if there can anywhere be found such a mass of goodish, puerile, trivial mockery of study or help to study as the rest of it is. For example, here is a specimen from one of the most extensively used question-books in the country. I opened it at random, and fell upon the lesson for Oct. 2. Here are the first two verses: —

25. And all the women that were wise-hearted did spin with their hands, and brought tha which they had spun, both of blue, and of purple, and of scarlet, and of fine linen.

26. And all the women whose heart stirred them up in wisdom spun goat's hair. — Ex. xxxv. 25, 26.

Now, it would almost seem as if a single question would bring out about all there is in that: What did the women do? Why, they spun, — blue, and purple, and scarlet, and linen, and goat's hair. It would be a pretty young or a pretty stupid child that would not answer essentially that. And then it would almost seem as if a little study on the colors and the materials would nearly cover that passage. That is, three particulars are about all an ordinary mind would observe. But alas for our feebleness, when the genius of the question-monger gets to work! Here is the way he does it: —

What did the wise-hearted women do? Why were they called "wise-hearted"? What did they spin? How many colors? What was the material? What fine material did they spin? Other women spun — what else? What was goat's hair used for?

Now, I protest that that is putting a premium on stupidity. Something of the sort might do for very small children, but the book in question is intended for all ages. It is filled page after page with the same utter twaddle as that, and hundreds and hundreds of schools are going through it every Sunday and calling it Bible study. Forsooth! Do you wonder why so many boys and girls, as soon as they can think, leave the Sunday school?

Another serious matter about the "helps" is their ephemeral nature. A few have cost labor, and are really of value. But on the present plan of going skip-hop through a book, there is no likelihood that we shall ever skip-hop over the same passages again, and so the whole becomes in a measure valueless. What are your "Lesson Notes" of last year or five years ago worth to you? Hundreds of thousands of dollars are thus annually thrown away, and any reasonable system should obviate the difficulty entirely.

4. Doctrinal teaching is another important thing that we are losing sight of. Now, there is nothing more despicable than sectarianism, yet nothing more honorable than a good sturdy belief. Only one thing is more pitiful than to have no religious belief, and that is not to know what we believe; and it can hardly be denied that a large portion of our people, at least of the younger portion, do not know what they believe. A few might be able to state some things which they have heard they ought to believe; but a very small number indeed would be able to state that they do or do not thus believe, or to give any fair reason pro or con. Why should they? These things are not taught anywhere. Doctrines, opinions, are sneered at nowadays, and called dogma; and liberalism is heralded as the thing. We are to forget all our beliefs in the great unity of the churches. I object. We are to be brothers and yet hold our

opinions. To cease to think on these great questions is to cease to think entirely. A man without decided opinions and the ability to formulate them is a weakling, and of no sort of use anywhere. Just this sort of weaklings we are trying to educate now in our churches and Sunday schools, and we are reaping the fruits of our teaching in the general weakening of society on all great moral and philosophical questions. Sneer at it as you will, it is the great fact of history that doctrine, — dogma, if you please, — religious, philosophical, political, has been the great formative power in our civilization. To ignore this as we do is one of the most serious evils of our teaching. If we have any convictions that are worth anything, they are worth transmitting to our children. If we have no convictions, — well, we should do just as we are doing.

5. A far more serious objection to our present Sunday-school work is its utter obliviousness to the nineteenth century. To none better than to our lesson-makers could the stinging words of our Saviour be applied: "Ye can discern the face of the sky; but can ye not discern the signs of the times?" (Matt. xvi. 3.) The times are critical. Everything is subjected to severest scrutiny. Hebrew, and Greek, and ancient history, and science are new things under the light of modern learning; and these, in turn, have revolutionized much of our accepted Biblical interpretation. Matthew Henry and Paley were good a century ago. The trouble is, we continue to parade the same old weapons when the whole system of modern warfare has changed. The great questions that men ponder now are on a very different line: What of evolution? Are the foundations of our religion mere myths like the old mythologies? Does science agree with Genesis or the six-days interpretation? Was the Deluge local? Were there pre-Adamites? Did Moses write the Pentateuch? if so, did he get the Ten Commandments on Sinai, or learn them from the "wisdom of the Egyptians"? Did we live before this life, and shall we live after it? Is our religion merely a human growth from mythology up through priestcraft and Christianity to philosophy, which shall be the great millennium of the race? These and a thousand similar questions are the great subjects of the world's thought to-day, and it is astounding with what skill our International teachers have succeeded in dodging them at every point. Our religious leaders seem to fail to realize how thoroughly society is permeated with painful thought and anxious doubt on these great matters. I find it everywhere; our young people are full of it; because of it thousands of honest Christians are harassed and perplexed, and thousands of others are kept from religion and float off

into the wilderness of unbelief. It is one crying evil of our religious teaching that these things are not made more familiar; and when I see, as I do many times every year, what satisfaction and often peace some simple explanation of the sun's standing still, or of the Deluge, or of the great miracles of Egypt, or of God's hardening Pharaoh's heart, affords to those who have been stumbling or sceptical over them, I am almost indignant that the church is so slack in its duty in this matter. Ignore them or not, these are the great living questions of the day; they are the questions discussed in all our schools of philosophy, in all our leading periodicals, in cultivated circles, among scoffing infidels; our youth are to meet them at every hand, to fall before them unless we throw aside our exploded methods, and come up to the study of the *whole Word of God* under the full light which the highest modern learning affords. Our churches seem afraid of this, and shrink back as though learning and science were irreligious. As well the growing plant shrink back from the sunlight! As though God and the Bible were not with, though immeasurably beyond, even the highest of all our science and learning!

6. But serious as are all these minor considerations, the crowning objection to the system is the system itself. It is the very perfection of the systematized lack of system. We take a verse here and a passage there, and the result is just what we should expect, — no definite knowledge of anything anywhere. When our young people study the life of Cæsar or of Washington, we take pains that they do it in an orderly way, and are not satisfied unless they really know that life with some degree of exactness in the view of surrounding events. Is the life of Abraham, or Paul, or Christ, of any less importance, or worthy of less careful knowledge? But you reply that it is the moral aspects of Bible history that we are after. True, but what real appreciation of the moral force of an event can we get apart from the life or history of which it was a factor? We are just now celebrating the siege of Yorktown; but how slight a view one obtains of it who studies that campaign alone. How little, a century later, could even so striking an event as the death of President Garfield be estimated, without our whole contemporary history, and the whole previous life of the man, — yes, and the lives of the mother and the wife, and the influence of schoolmaster Bates, and Almeda Booth, and Mark Hopkins, that contributed to make that death what otherwise it never could have been. No moral event stands out isolated and alone; the Bible nowhere commits the folly of any such teaching; and it is astonishing that for centuries our study of the

Bible has been of this narrow and unnatural sort. It is especially surprising that our International advocates, with all their progressive ideas, are so relentless in opposition to every attempt to bring the work up just one step further to the really true and effective standard.

This point is of fundamental importance, and cannot be too strongly urged. This hop-skip-and-jump method, what would be its results in our secular schools? Try it in history, for instance: a lesson on our Civil War, another on Cæsar, another on the French Revolution, the next on the Puritans, the next on Homer and Milton, and what of history would the student learn? He would have a few isolated facts, to be sure; but what of that great chain of causes and effects that we call history? what of those deeper and only true lessons that the broad and connected view affords? And are the Word and works of God in the world of less importance than the word and works of man? Detached portions, a verse here and a verse there, are good, undoubtedly, and often bring great profit to devout meditation; but how vastly is the force increased when the same are taken in connection with all the added interest of what precedes and what follows, and of all the surrounding circumstance and history. Take for example, first alone, and then in their connection, those incomparable words, *Jesus wept.* Take any scattered incidents in the life of Christ, beautiful and impressive as they are, and how puny they are compared with the life itself; and yet with all our study, how many of us have any clear view of that life as a whole? Or take Genesis, Exodus, Mark, and the rest: how greatly the detached portions are magnified when considered with the book as a whole; and the book itself, what more impressive meaning it always receives with the Scripture of which it forms a part. Religion, the Bible, is the most remarkable fact, the one single stupendous fact, in history; and shall we hash it up and drivel it out in little tractlets as the penny rhymester peddles his doggerel on the streets? The most invincible weapon in behalf of the Bible is the Bible itself, and the most potent against either impenitence or the very strongholds of the infidelity and materialism of the times; but let it not be handled like the swift little bullet that falls flattened before the rampart, but like the slow, ponderous mass of iron with its tremendous momentum that shakes the whole structure to its foundations.

III. From considerations like the foregoing, it becomes the plain duty of the churches to inaugurate a new system of Sunday-school work. Extensive inquiry assures me that this conviction is growing very widespread, especially among the clergy and the more thoughtful of the laity. There is hardly a single practical educator anywhere who is not outspoken and emphatic in this opinion.

The pressing question is, what to do. With the experience of the past, there need be no hesitation whatever on that point. Our International leaders have been gradually forced into a better work; the programme on Exodus which we are now studying is the best they have ever made, and that on Mark for next year is more promising still. But after all, here is this piecemeal work, this patchwork theory, — nothing can ever drive that absurdity out of their heads. Then, with all due deference, the Book of Mark, or of Matthew, or of Job, is not the best thing for a whole school, especially the children. What we want first, after the infant Bible-stories, is a year or two years on the *life of Christ*, drawn from all the four Gospels, — not a mere patchwork, but the whole life in its unity, precisely as we shall teach in our schools the lives of Garfield, Lincoln, and Washington. This for a basis for every child and every man and woman, on which to build their life study and their life work. When this is accomplished, whether in one year or three, the Book of Acts and the Old Testament history may be studied in the same thorough way; and after six or seven years, when those who have gone over the whole are ready to graduate, so to speak, — up in the Senior Class, — then, and not till then, are they equal to the study of the Gospels singly, and of the Epistles, Revelations, and the Old Testament poetry and prophets. These last are severe work, — not milk for babes, but meat for strong men, — and require critical study, and all the discipline and spiritual insight that only mature years and large Biblical knowledge can afford.

Such a work should be graduated, of course; made simpler for the children, and more comprehensive for adults. A little doctrinal work should be methodically introduced all along the line; not much, but enough to ballast our churches. There should be, whenever good occasion offers, especially by the superintendent and the minister, brief, pointed discussions of the Scripture teaching on the living philosophical questions of the day, and of the *hard places* over which so many stumble and are troubled. There should also be somewhere — say after Acts have been studied — a short course of six months on church history; it could not fail to be of great interest and value. Then, after a full course of, say ten years of this work, let not all the older students be drawn back through the same thing again, — not that it would not be valuable: reviews are always valuable, — but to those who wish give post-graduate courses, so to speak; special courses, in which classes of adults in the churches shall take up more carefully particular topics in which they have become interested, as Mark's view of Christ, John's view, the Exodus, the poetry of the Bible, Scripture doctrine of immortality, evidences of Christianity, authenticity of the Bible, and the like.

I am fully confident that such a grand work as this is not at all beyond the reach of the churches. It will not require a great array of institutes to prepare teachers. Ten thousand public teachers all over our country, by downright hard study, have fitted themselves for their positions; ten thousand, a hundred thousand Christian teachers can do the same in their work. This progressive, intellectual work will hold our youth who now slip away from us. A great advantage will be that all help needed can be gained from regular commentaries and other standard works, which will grow all the more valuable after once using, and will ever after be a constant reference. To teach our people to use such helps, instead of the pitiful stuff which they do study, would of itself be an infinite gain.

For the main part of this course, the International idea ought to be kept up, so that in our general helps, teachers' meetings, travels, etc., we may have the advantages of the same lesson everywhere. But at the outset this will be impossible, for our International men are immovable from their present methods, and have always scouted the topical plan. Not only are they perfectly sincere in this, but "their craft is in danger"; the flood of ephemeral helps which they print would have to give place to a more substantial literature. Any work of the sort must have a small beginning, and make its way slowly on its own merits. That a properly constructed scheme of this character would be successful and slowly supplant the present, there can be no doubt.

The present is an eminently favorable time for inaugurating this advance. In the first place, there is this extensive disaffection with our present methods.* Again, the tenor of the criticism seems almost unanimously in favor of some comprehensive and topical system.

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* Since the foregoing was written, the writer has had the satisfaction of reading very similar views presented by Rev. George M. Boynton before the Congregational Sunday-School Union of Massachusetts.

The present method, while it spurs to study and scatters it over the whole Bible, is yet utterly unscientific, and it is not adapted to lead to "a thorough knowledge of the Word of God." Its method is not that by which any other study is successfully pursued. It lacks entirely the element of progressive advancement, except as it advances through or over the pages of the two Testaments.

We need, in the study of that library of divine truth which we call the Bible, something of the method which in the study of all other branches of learning is found to be indispensable to real progress. *We need a graded system of progressive instruction* in the Sunday school as much as we need it in the day school.

Mr. Boynton's scheme embraces the Bible *stories*, *biography*, and *history*; the *Bible itself* as to its structure, history, etc.; *Christian morals*; and *doctrinal instruction*.

More important than all, the International study for the year is to be "Mark's Gospel"; all we have to do is to make it the *Life of Christ*, and the change is accomplished. Let some denominational publishing society, or even some conference, synod, or association, appoint a competent committee to arrange that history topically in a one or two years' course, drawn from all four Gospels, and issue it in about three grades; and if reasonably well done, there can be no question but that it will immediately go into extensive use. Once before the public, the pre-eminent superiority of the plan will make its universal adoption only a question of time. Finally, no matter what the opposition or obstacles, this is one of the fixed facts of the immediate future; for what *ought to be* when the times are ripe, Providence invariably finds speedy means to accomplish. No more important or urgent work now presses upon our churches. Who shall have the honor and burden of the great advance?

ORAL TEACHING.

BY EDWARD A. H. ALLEN.

No maxim of education is more important, and yet is more frequently lost sight of, than that every child requires special training adapted to his individual needs. The best method for one may utterly fail with another, or with the same child at another time. Age, sex, temperament, bodily and mental condition, the size and constitution of the class, the weather, the time of the day even, and season of the year, — these are illustrations of what will determine the successful method for the case in hand.

But the charge is often and seriously made, that, while our schools have become more systematized, the instruction in them has become more mechanical, the pupils being trained to read alike, speak alike, write alike, and, losing individuality of character, even to think alike. A result so deplorable as this cannot, of course, be apprehended in a free country and among intelligent people; but order and uniformity are so deceptive in their attractiveness that we need to be reminded of our duty to recognize the individuality of every child, not only as his sacred right, but as an essential condition of that excellence which consists in the harmony of different qualities, both good though apparently incompatible.

Now, this adaptation to individual needs can in most cases be better secured by *oral teaching* than by any other means. All good teaching, indeed, is largely oral; and all great teachers, from Socrates to Agassiz, have been famous, either for the success with which, through the oral method, they have instructed their pupils, or for the skill with which, through the same method, they have drawn out and vitalized their intelligence. In but few schools is the so-called teacher content merely to hear lessons; so that to advocate oral teaching will in no quarter meet with opposition.

By oral teaching will be here understood that method by which the first presentation of the subject studied is, in both form and substance, through the lips of the teacher; the first impression received through the ear of the learner. The process may be and should be mutual; and experiment and other illustration may aid. But the main characteristic of oral teaching, and which gives it especial value, is the fact that *before* the study of the subject, either from books or without books, the learner has his mind directed and at least an outline of the lesson communicated by the teacher.

The usual order is the reverse of this. The lesson has been assigned from the text-book. The child reads it or studies it with various degrees of intelligence; but when the matter is difficult or the style obscure, he is naturally led to commit the words to memory, and its true value is seen only when made clear by the teacher at the recitation. Meanwhile, wrong impressions have been formed, which an extra and quite unnecessary amount of brain-work is required afterwards to displace. This is the text-book method.

Adopting, then, the definition of oral teaching given above, let us consider its claims to our attention.

First, and most important of all, oral instruction can adapt itself immediately to the needs of the pupil. A question arising from some difficulty; a look of ignorance, doubt, or perhaps of distrust; and the convincing proof or illustration, — use can best be made of all these when need is most felt. At the very moment when the child's mind is conscious of this ignorance or doubt or distrust, the proper remedy can be applied. Not that in every case the doubt will be at once resolved or the difficulty removed: the skilful instructor will lead his pupil to see the source of the trouble, and thus to escape from it himself; or even, perhaps, to devise and extend illustrations to make the path clearer to others.

It is not so, and cannot be so, in book study. If the explanations are too numerous or too minute, the mind of the learner is freed from work and left merely recipient; and thus many a bulky school-book though admirable for the teacher, is wholly unsuited to the needs of his pupils. And if, on the other hand, the book is literally a *text-book,* — a compendium of history or grammar, an outline in science, or a collection of principles in mathematics, — then the study is dry, and repulsive, and a full success is impossible.

A second advantage of oral teaching is that, especially with the younger pupils, it secures mental power which book study cannot give. When the child is led by well-directed questions to take an active part in a new lesson, or still better, to ask questions himself, his attention, quickly excited, is easily kept; and by a comparison of objects, or of processes, or of definitions, or of reasons, his judgment is thoroughly exercised. It may be made, too, an admirable means of drill in language, both for increasing the child's limited vocabulary and for perfecting him in the oral use of it. The brain is not ransacked, as in ordinary lesson recitation, for words half understood and imperfectly remembered, but is exercised in a hundred useful ways, each serving its part in the complex process of education.

Another claim for consideration, founded on that last given, is that oral teaching develops in the child a consciousness of power and confidence in the use of it. How many boys and girls are accounted dull, and believe themselves so, who are bright, self-possessed, and capable in all else but their lessons! How many men, indeed, distinguished in after life as successful merchants, soldiers, naturalists, as scholars even, were considered dunces at school! and chiefly, it may well be confessed, because the only avenue to scholarship was thought to be the study of books.

In a recent address on "Methods," Professor J. H. Allen, of Harvard University, speaking of "the difficulty that most learners have in understanding lessons in a printed book," makes this striking statement: "I have myself had a good many pupils, first and last, most of them private pupils; and I cannot remember one who was intelligent enough to understand a plain rule in arithmetic or a plain rule in grammar from the text-book. I will go further, and say that grown people, too, find the same difficulty. For myself, almost all I have succeeded in learning of mathematics or grammar since leaving college has been from talking with the best mathematician and the best grammarian I could find." This view is an extreme one; yet who can deny that to the mind of the average child, — to nine, indeed, out of every ten, — the printed book must be illuminated by the teacher's explanations before its obscurities are entirely cleared away?

But if oral teaching develops self-reliance in the learner, it no less awakens the sense of power in the teacher. As he comes before his class, it is not with book in hand, to verify by the printed word the answers mechanically given to questions mechanically put; but without book, the subject clear and complete in his mind, he studies his class while he questions or instructs them, — encouraging the backward, cultivating the intelligence even of the brightest, and adapting his work to the various needs of all. To him it becomes an exhilarating mental gymnastic, developing observation, expertness in illustration, logical and rhetorical skill, sympathy with his pupils, and such knowledge of their minds and characters as will be of the greatest service to him in his future training of them.

Oral teaching, again, allows *real* or *objective* illustration; while book study, if not making it impossible, at least discourages it. This is more obviously true in the descriptive and physical sciences than in either mathematics or language; yet even in these, the illustrations, given in part by the teacher and in part called out from the pupils, will be more vivid and more instructive, *because adapted to the occasion*, than those *cited for general use* in the text-book. We may assume, too, that the teacher will have at hand a well-selected assortment of illustrations to use as need arises. He must not forget, however, in his self-conceit, that the contributions furnished by his pupils, if to the point, are far better than his best; for they are the fresh product of the young mind, and thus, *for it*, the more real.

Among the advantages claimed for oral teaching, and not a minor one, is the consequent relief it affords to the eyes. Near-sightedness and other eye troubles are alarmingly prevalent. "The statements of all authorities," writes Prof. Cohn, in an article reprinted in the "Popular Science Monthly" from a German magazine, "establish that everywhere, and in all institutions, the number of myopes increases from class to class. It ranges at between thirty-five and sixty per cent of the whole number of scholars. . . . I examined the pupils of the Friedrichs Gymnasium at Breslau in 1871, and repeated the examinations upon the same persons three semesters afterwards. Seventeen pupils who had been found normal-sighted at the first examination had become short-sighted, and more than half of those who had appeared near-sighted at first had become more so." And he adds, in reference to the proper selection of school-books. "I believe that letters which are less than one millimeter and a half in height [*i. e.*, long primer] will finally prove injurious to the eye, and . . . the narrowest interval that should be permitted between the lines is, in my opinion, two and a half millimeters [*i. e.*, one tenth of an inch]." And although, according to Dr. Derby, "there is found in the United States only about one third as much near-sight as is met with in Europe," yet "this percentage steadily increases, and at the age of twenty, at least twenty-six in a hundred are thus affected." Now, any plan which, without impairing the efficiency of our schools, shall in some degree diminish the continuous and excessive strain upon the children's sight, should be welcomed as a great boon. Much has been done by demanding large, clear print in school-books, by a proper arrangement of desks in reference to light, and by a suitable alternation of study and recitation. Oral instruction will do still more; for even should the pupil be required to take notes of the lesson as it proceeds, yet the eye is frequently diverted to the face of the teacher, or to the illustrations he makes by experiment or at the blackboard.

It is not claimed that these points of excellence belong to the oral method alone. A skilful and sympathizing teacher will, by whatever method he employs, develop confidence in even his most diffident pupils. His experiments may be just as apposite when made after the book study as when introductory to it. But the main point remains: that oral teaching, as no other teaching can do, sees the child's need as it arises, and adapts itself promptly to meet it, thus making an impression more vivid, real, and lasting.

Objections, however, both theoretical and practical, are made to its general use. By it the teacher, it is charged, becomes a mere talker or lecturer, self-deceived as to his pupils' progress because satisfied with his own clear idea of the subject and mode of presenting it, while they may have remained entirely passive. It is liable to become what Mr. David P. Page used to call the "pouring-in process," than which nothing could be more futile in itself and more disastrous to the mental training of the child.

It is often sadly wanting in exactness; and during the lesson, so much may be said and *ostensibly* taught, that but a vague impression will be left of many things half understood and half remembered: and as Superintendent H. F. Harrington pointedly puts it, "If any one expected accurate knowledge to be gained from oral instruction so as to be the subject of critical examination, he would find himself wofully mistaken."

To the child, too, attractive as oral teaching may be made, — nay, because it *is* attractive, — the sense of obligation *to work* may become weak: study, hard, earnest, patient study, — which, after all, more than good instruction, makes the successful scholar, — grows into disuse. For

> "Study is like the heaven's glorious sun,
> That will not be deep searched with saucy looks" •

a caution quite as significant as its counterpart, —

> "No profit grows where is no pleasure ta'en:
> In brief, sir, study what you most affect."

Bacon recognizes the important truth contained in these sayings of the great poet, when he writes: "Another precept is, to practise all things chiefly at two several times: the one when the mind is best disposed, the other when it is worst disposed; that by the one you may gain a great step, by the other you may work out the knots and stounds of the mind, and make the middle times the more easy and pleasant." It may be questioned whether oral instruction *as usually pursued* affords sufficient opportunity for this working out "the knots and stounds of the mind."

Again, it is objected, where oral instruction is the teacher's chief occupation, the demands made upon him are excessive, not only in the preparation for his daily work, but in the physical fatigue he must undergo in its execution.

It will appear, further on, that most of these objections will fall to the ground if a wise method of oral teaching be carefully formed and judiciously followed. The last one, the excessive drain upon the teacher's energies, will always remain a serious one, and never to be entirely overcome until all our teachers are well informed, well trained, conscientious, of sound health, and of ready tact in adapting means to ends.

There may be other objections, but these are believed to be the principal ones. They certainly are very plausible; and we frankly admit that unless oral teaching can be shown, in spite of them, to have undoubted merits, rendering it superior to other modes, it would be wise to retain these other modes, making the most of the opportunities they furnish, and remedying their defects as best we may.

But as stated at the outset, no single method is the best method for all pupils, for all teachers, for all topics; and it is necessary to consider the proper limits to its use. The numerous failures it has met with, though each might have been prevented by a more careful study of the conditions under which it was used, have brought it into undeserved discredit. What, then, are these limits?

First is the limit of the pupil's age. Little children can be taught in no other way. Only after a year or more of oral instruction can book study be required, and then but to a very slight extent. In primary schools and kindergartens, oral teaching must prevail, and in its purest form. True, there are writing, drawing, building, weaving, moulding, singing, and other practical exercises, following the lessons; but the lessons themselves are from the lips of the teacher. Where lesson learning from books is attempted or made compulsory, as is still sometimes done even with the younger children of primary schools, the languor, inattention, disquiet, and ill behavior which prevail are but a fit response to the unphilosophical, though it be time-honored, mode of training them.

Soon, however, in some studies the use of text-books seems necessary. How can they best be used? Now, text-books are only a means for securing the suitable growth and training of the child's mind. The information they contain and would convey is, in good school-books, selected with reference to this great end, and in amount it may be comparatively small. The public library, the newspaper and magazine, social intercourse and experience, give to the intelligent child tenfold more information than he gets from his school-books. Brief compendiums are proverbially uninteresting; but if the child's first introduction to a study is through oral teaching, the dulness of the meagre printed sketch disappears; for it is illumined by the fuller statement, the anecdote, the question and answer, the illustrative experiment, and especially the properly bestowed *emphasis* of the prior exposition.

And might not this practice of anticipating the book study by some oral introduction, so necessary in almost all the lessons of a grammar school, be advantageously continued through the high school and the college? Indeed, for a trained mind the danger before adverted to, lest oral teaching become mere talk, will in the higher institution, with its educated instructors, no longer exist. Hence the favor with which the lecture has always been sustained in university instruction. Even with trained minds, however, it may be used to excess, and must be supplemented by written themes, laboratory practice, field work, or other practical exercises.

As regards the teacher, the limit to oral instruction will be dependent mainly on personal qualities: his physical vigor, management of voice, and readiness to adapt himself to emergencies and "to think on his feet," — qualities that he may naturally possess or should have secured in his professional training. His training, however, must be a constant, a daily one; and it might be found, in a candid confession, that this necessity of never-ceasing preparation is the true reason why so many teachers, having tried the oral method, slip back into the easier one of hearing lessons assigned from text-books. If the time ever come when schools and classes shall be of moderate size, and some part of the burden be lifted which now presses so heavily in the multifarious marking of attendance, conduct, recitations, and examination papers, the teacher will be glad to undertake, with freshness and with success, the proper function of his office, indicated in the name of *teacher*.

But the principal limits to the employment of oral teaching will suggest themselves as we discuss the various methods of conducting it. A full discussion of them is not necessary. Indeed, for reasons already presented, minute regulations in a matter so important as methods of instruction would, if rigidly enforced, degrade teaching from a profession to "a mere mechanic art."

Three methods may properly be considered, together with the subjects of instruction appropriate to each.

The first is that of the formal lecture. This is especially suitable to the college, where the professor can bring within small compass the results of the investigation of years, and where the student, thus rapidly and wisely directed in his own researches, is saved much misapplied toil. There is hardly a subject of science, literature, or art where the lecture cannot be used. Occasionally, too, the customary methods employed in high and grammar schools may be varied to advantage by the introduction of a lecture. Its æsthetic influence, akin to that of impressive reading or of noble music, is no small matter, where the days are given up so much to the details of prosaic work. Consecutive thought becomes a possibility, and the deeper emotions are stirred with new life. Even in the primary school all this is possible, especially in moral instruction.

The second method, too, is purely oral; but in it the class as well as the teacher takes active part. It is the method of "conversational lecture," made familiar in successful object teaching. The studies of our common schools are mainly in language, mathematics, and science, each of these having its theoretical and its practical side. The latter requires on the part of the pupil daily exercise in reading, speaking, penmanship, composition, ciphering, drawing, gymnastics, and use of tools and apparatus; and in these exercises, diligently performed, resides a large part of the valuable work accomplished in our primary and grammar schools. "Hand training is mind training"; and *mere* mind training, since long before Milton's day, has been but "that asinine feast of sow-thistles and brambles which is commonly set before [children], as all the food and entertainment of their tenderest and most docile age." To study, to understand, and to reason are, it is true, essential in school training. But these are surprisingly aided by what is sometimes a mere appendage or sequel to them, — that is, practical work. Practice, at least in the lower schools, must come before theory, facts before reasoning.

But studies have their theoretical side as well. The principles that underlie and by which are explained the facts learned, the sums worked, the experiments made, — these also demand attention. And here the very best use can be made of oral teaching. Not, it is true, in all branches alike. The most abstract, as mathematics and grammar, certainly require it. The natural sciences, allowing, as they all do, much illustration, can be well taught in hardly any other way. Question and answer by both pupil and teacher, experiment and explanation, give a vitality to the pursuit of the sciences by this method that book study cannot possibly secure. Whether it is equally *effective* will depend on the skill of the teacher; for the animation and interest aroused, however valuable, are by no means the truest criterions of his success. To insure success he must have a well-formed plan of each lesson; a plan which will, in general, have been taken from an authorized and prescribed book, — the teacher himself being thus relieved from the labor of preparing it, and from the danger of falling short or of going outside of the proper amount to be taught; and though this plan be modified in details, he must present it *in orderly form* to his pupils. Yet, as the lesson proceeds, he must constantly give them the opportunity to secure the high gratification coming from an original discovery of fact, process, or principle, and an original statement of it. He must let the work, as much as possible, be their work, in which they may indulge an honest pride. From the notes of such a lesson, taken at the time or subsequently copied from the blackboard, they should be required to write off more complete reports, to serve as material for recitation, review, and examination. By this method, in fact, the pupils will have made their own text-books.

In most cases, however, either from the incompleteness or from the inaccuracy of these records, need will be urgently felt, sooner or later, of a trustworthy text-book; some standard authority, to serve, not indeed as the introduction to the subject, yet as the basis of further study and review.

And here we come to the third method of oral teaching. By this, each lesson is learned from a book, but only after a *previous exposition* by the teacher. Roger Ascham, detailing the duties of an instructor in Latin, says: "First, let him teach the child cheerfully and plainly the cause and matter of the letter [one of Cicero's Epistles]; then let him construe it into English so oft as the child may easily carry away the understanding of it; lastly, parse it over perfectly. *This done*, let the child by and by both construe and parse it over again."

And Alexander Bain, in his treatise on education, says, also in reference to teaching languages: "With a view to the firm and permanent association of one word with another word, there should be a moment of isolated and concentrated attention upon the two. This is gained in various ways. The turning up a dictionary is the commonest way of isolating the attention; to a young, fresh memory, one dictionary reference is usually enough, provided the word soon recurs. . . . There seems no reason why this should not be combined with a little of the other method; namely, for the master to expound the passage fully, in the first instance, and then require the pupil to reproduce it next day by memory, — aided, if need be, by a reference to the dictionary. . . . No doubt the method of *prior exposition* is best suited to scientific lessons, as geometry; but it is not wholly unsuitable to lessons of pure memory." And Mr. Mayo's testimony does not contradict this when he says, "A good text-book, with a hard-working scholar at the end of it, is the best way of developing knowledge and power in the school-room, until an expert steps into the teacher's desk and illustrates the printed page by the presence of a living soul."

Great harm may come, however, from making this prior exposition too minute. The indolent pupil will soon learn wholly to depend on what is thus supplied, while the bright and ambitious are vexed at being denied the opportunity of personal research. This opportunity is the child's right, and must be honestly respected. All good education, indeed, is largely self-education, but is not therefore to be pursued without some help or guidance. And this granted, it becomes an important question whether the guidance should be through *the printed page of a book* — written to suit the imagined wants of the average pupil, the dull and the quick alike — or through *the spoken word of a teacher*, who knows the respective needs and powers of each individual of the class before him, and can adapt his teaching accordingly. Is it not quite as possible that a text-book may help too much as that the teacher will explain too much? Both are grave faults: but the important point is, that in oral teaching the amount and kind of help to be given are in the teacher's own hands; while, with the use of a text-book, though a deficiency of explanation may be readily supplied, *an excess cannot be hidden or removed*, and the learner is *carried* where he should only be led, or directed, or even be made to tread the path alone. For, observe, though a book can be thoroughly adapted to the wants *either* of teachers or of their pupils, seldom does it well serve both. The teacher should have for constant reference and for private study the best works upon all the subjects he is to teach. But these works are evidently unsuited, and usually inaccessible, to young learners; and the brief compendiums of principles and rules, with their practical applications, that pupils may require, are wholly inadequate for the teacher.

Of these three methods of oral teaching, — namely, the formal lecture, the conversational lecture, and the prior exposition of the lesson assigned from a book, — the first can be but sparingly introduced with success into common-school work. The second, supplemented by written abstracts of each lesson by the pupils, in small classes and with able teachers, can be made exceedingly effective, — the most effective of them all. The third is suited to nearly all studies and to all ages, except of the youngest pupils; it is already very extensively practised, though seldom with system and with a clear understanding of the conditions needed for success.

A reaction has already set in against the multiplicity of studies in our schools; and when a study is not of undoubted profit in discipline or in knowledge, it is well to cut it from the course. But we do not need, on the one hand, to return to the study of only "the three R's" in elementary education; and it would be equally foolish, on the other hand, to acknowledge that the superiority of our present schools over those of former times — a superiority which many deny — is *because of* the number and variety of the branches now taught in them. We may secure the severe training of the older ways, and at the same time receive all possible benefit from the more generous provision afforded by our present system. Reduce the number of disciplinary studies to the standard of the olden time, and give over most of the geography, history, literature, natural history, and physical science to pure oral teaching. Two lessons a day, one in mathematics and one in language, might ordinarily furnish abundant discipline in reasoning; while reading, writing, drawing, observing, experimenting, and oral lessons would well occupy the remaining school hours, more profitably than by the usual plan, and without the weariness, discouragement, and impaired eyesight that our pupils now too often show.

If, among the features of our schools, admirable as some of them are, anything is more sad than the hard, dull, dry task-work still to be found in them, it is the thwarted ambition of the eager young student aspiring to the success never to be reached; the bright promise of the child unfulfilled in youth, and in manhood, too often, alas! to "fade into the light of common day." The present burden of learning from so many books, and of reciting so many and so various lessons, cannot be safely borne. The danger involved in the attempt is only paralleled by the failure sure to be disclosed in the results; especially because, by fifteen years of age, long before the body and the mind have reached their strength, the vast majority of school children have bidden farewell to school study, and well or ill prepared, must enter on their work of practical life.

It is not the province of this paper to propose a suitable scheme of study. But it is confidently claimed that by a well-considered and systematic use of oral teaching, through one or more of the methods herein described, many evils in our schools, now widely seen and deeply deplored, can be entirely removed.

EDUCATION AT THE SOUTH.

BY J. L. M. CURRY.

THIS subject is somewhat misleading. Education is education, whether at the South or at the North. No Mason and Dixon's line runs through the individual or the aggregate human mind of this country. Persons of like ages and surroundings have the same educational necessities. The subject was doubtless given me because of the exceptional circumstances that belong to or environ the South, and thus modify the general question.

I am sick *ad nauseam* of the unceasing allusions to the war; and yet, with us at the South as with you at the North, it is somewhat like the Flood,—a standard of date, an epoch. As we speak of antediluvian and post-diluvian, so we speak of ante-bellum and post-bellum. Allow me to say that before the war the South had private schools, academies, and colleges, the last often misnamed universities. For the higher education of young women, as much was done at the South as at the North, if not more. Much misapprehension exists on this general subject of "Education in the South." In proportion to population, taking man for man, negroes excluded from the calculation, the South sustained a larger number of colleges, with more professors and more students, and at a greater annual cost, than was done in any other section of the Union. The same was true of academies and private schools. According to the census of 1860, Massachusetts had a population of 1,221,464, and Virginia 1,047,411. Massachusetts had 8 colleges, with 96 teachers and 1,733 students, at a cost of $195,110; Virginia had 23 colleges, 183 teachers, and 2,824 students, at a cost of $243,940. Massachusetts had 319 academies, 633 teachers, 14,001 students, at a cost of $490,047; Virginia had 398 academies, 720 teachers, 13,204 students, at a cost of $544,241. New Hampshire had a white population of 325,579, and South Carolina 291,388. New Hampshire had 2 colleges, 29 teachers, 390 students, at a cost of $26,370; South Carolina had 14 colleges, 90 teachers, 1,384 students, at a cost of $192,675. New Hampshire had 208 academies, 351 teachers, 11,444 students, at a cost of $25,331; South Carolina had 228 academies, 367 teachers, 8,227 students, costing $293,244. These comparisons might be further extended with similar results. The white population of the Northern States in 1860 was about 19,000,000; of the Southern States, about 8,000,000. The North had 205 colleges, 1,407 teachers, 20,044 students, at a cost of

$1,514,298; the South had 262 colleges, 1,488 teachers, 27,055 students, at a cost of $1,662,419. These figures, subject doubtless to some modifications and explanations, are not introduced for invidious comparison, but that we may look at the subject intelligently in all its bearings.

In the matter of public schools, sustained by taxation and free to all who chose to attend, the South at the date given exhibits a painful contrast. The South was far behind the North in the provision made for universal education. In some towns free public schools were sustained, but no plans adequate for universal education existed.

While I shall not seek to excuse this neglect, some palliating considerations may be suggested. African slavery sparsified the population, prevented immigration, created a select class, — an aristocracy, — restricted agriculture to a few products, arrested manufactures and mineral development, and confined the wealth in the hands of a few persons. Slavery, as introduced into and fastened upon the South, was a great blunder, — a social, political, economical, educational blunder; and I rejoice and the South rejoices that it is gone, irrevocably gone.

While slavery has fortunately ceased, it may be well to remember that the prejudices engendered by the "peculiar institution," and the angry controversies to which it gave rise, have not been eradicated on either side. Let us practise toleration, forbearance, and patience, and not be too impatient for results.

In the minds of many people at the South, there were deep-rooted convictions against gratuitous education by governments. Our habits and institutions were different from yours. Habits and customs change slowly. In the establishment of free public schools, obstacles were to be overcome, and making haste slowly was found to be a wise maxim.

At the close of the war, the South was poor and nearly bankrupt. Everything was out of joint; despondency and despair settled on the hearts and paralyzed the energies of some of the bravest and the best. To the most sanguine the outlook was not hopeful. Problems numerous and difficult, requiring decades of years, pressed for immediate solution. The labor system of centuries, inwrought with every fibre of the social and political and economic fabric, was in the twinkling of an eye destroyed. Convictions long cherished, inherited from grandsires, as to the character and structure of the government, were overthrown. A new era suddenly dawned; a new South had to be built amid the ruins of a perished civilization. To look back to the surrender at Appomattox and contemplate what has since been accomplished awakens wonder and gratitude, and is the highest tribute to the energy and capacity of the people and the creative power of free institutions. In the brief period which has elapsed, myth and fable have been eclipsed by sober, stern realities. Questions most vital and complicated, which embarrassed the statesmanship of the country, this is not the time nor the place to consider. Suffice it to say that when the Confederate soldier furled his flag, there was not a Southern State which had a system of public schools; now, in organic law and in statutes, universal education is recognized as a paramount duty. The newspaper press gives intelligent and effective support; party platforms incorporate public schools into political creeds; State revenues are appropriated; local communities levy taxes; and scarce a murmur of dissent is heard in opposition to the doctrine that "free governments must stand or fall with free schools." Much of this improved public sentiment and improved legislation is due to the wisdom of the Peabody trustees, and to the sagacity and unrivalled common-sense of Dr. Sears, and the thorough familiarity with all the details of public schools which he acquired when he was Secretary of the Board of Education of Massachusetts.

Laws on statute books do not execute themselves: they need the vivifying and sustaining force of an enlightened and approving public opinion. State school systems, administered by boards of education, State superintendents, educational journals, normal schools in several of the States, teachers' institutes, local and State, attracting increased attention and diffusing more widely their benefits, are all evidences of progress; but they need to be strengthened and placed beyond the contingency of a popular election.

There is not with us a proper appreciation of the science of education. Teaching as an art and as a science is imperfectly recognized; but there is or should be a science of education, and EDUCATION can do no more valuable service than to continue its labors, so wisely begun, in enforcing and elucidating this truth. Commodore Maury, from the log-books of sailing vessels, gathered a mass of confused and unrelated facts, and by rare powers of analysis and generalization, made inductions of principles which, put into charts and sailing directions, have almost revolutionized navigation. We need some philosophic educators, who, collating facts gathered from the nursery, the school-room, the play-ground, shall classify, with scientific accuracy, these mental phenomena, and by a process of laborious induction construct a science invaluable to the educator, in its statement and exposition of the true laws of mental growth and development.

As auxiliary to this may be mentioned professional training. The "New England Journal of Education," an authority in educational matters, says, "The training of Southern common-school teachers is now the most vital point in American education." The Peabody trustees, concurring in this opinion, have declared that in their judgment the benevolent designs of the trust can be best secured hereafter by the education of teachers for the public schools. Let us not deceive ourselves, however, as to the work to be done. Thorough and repeated canvasses will continue to be necessary to inform the public mind, convince of the indispensableness of free education, and of the necessity of local taxes supplementing State grants for the support of schools. State and local taxes, liberally as they may be voted, will not suffice. Northern generosity has been munificent in aid of education at the South: since 1862, over $6,000,000 have been given for the education of freedmen. All honor for these ecclesiastical benefactions, but they do not meet the need. We want primary schools, under State control, for universal education. The illiteracy at the South is appalling; it is not confined to the negroes. In the Southern States, by the census of 1870, there were 820,022 illiterate colored adults; but alongside of this fearful mass of ignorance were 317,281 illiterate white adults. In a government having its life in the intelligence and morality of the masses, a white illiterate voter is as dangerous as a black illiterate voter. "The highest form of citizenship necessitates the highest form of intelligence," and what grows on the head, whether hair or wool, neither increases nor diminishes the necessity.

The last census shows that the negroes increased in ten years from 4,486,381 to 6,577,151, or thirty-three per cent. The elevation of this race to complete manhood and womanhood, to the full appreciation of the responsibilities and duties of the parental relation and of the privileges and prerogatives of American citizenship, is a great problem, requiring generations to solve. The Anglo-Saxons took half of a millennium to grow into civilization and freedom; and why should we expect the negro to spring, Minerva-like, into a state which with other races demanded a tedious probation? While some are too incredulous as to advancement of the negroes, others are too impatient for early and visible results. A vast deal has been accomplished since emancipation. The Southern white people have paid millions of dollars for the education of the negroes. Most gratifying progress is seen in their increasing intelligence, thrift, and acquisition of property. The revolution in public sentiment as to the educability of the race, resulting in voluntary taxation for their benefit, instead of eliciting reproaches and harsh criticism, should call forth charity and praise.

In the South, public schools and normal schools need to be increased and improved and more liberally sustained; but home taxation and Northern beneficence are insufficient to this end. The General Government should come to the rescue. This is a question of national importance, far outweighing bimetallism, legal tender, Pacific subsidies, dead-locks, and every legislative question except civil-service reform, of which it is a vital part. Among the 1,137,311 illiterate adults in the South, what a mass of ignorant voters! What a factor in elections! Untutored, non-property-holding voters are tools for demagogues, and make "machine politics" easy of application. Seven hundred thousand illiterate voters can make governors, congressmen, and Presidents; can decide great questions of national policy, exert an influence coextensive with the Union, and are themselves eligible to offices of trust and honor. I have myself heard appeals to colored voters, pressed pertinaciously and successfully, based on the ground that they were neither legally nor morally bound to pay a public debt contracted before they were citizens.

Slavery has been pronounced to be a gross blunder. Terrible as was the war, it has had much compensation in the liberation of the slaves. Emancipation, however, has not regenerated the race, nor qualified them for the discharge of the duties and responsibilities of citizenship. The elective franchise is not a universal catholicon; has no talismanic virtue: but it implies the possession of intelligence, an appreciation of the value of free institutions, and the courage and virtue to sustain and perpetuate them. This is a "government of the people, by the people, and for the people." The ballot is the freeman's prerogative. It is stronger than bayonets. It should be conjoined with patriotism, knowledge, and integrity: it often represents passion, prejudice, ignorance, crime. President Garfield, in his inaugural, spoke of a free ballot as of priceless importance, and worthy, for its security, of the exercise of all federal and State power. So say we all. But for a ballot to be free, it must be the symbol, not of stupidity, superstition, corruption, intimidation, but of exalted ideas, pure principles, and intelligent comprehension of its uses and ends. A ballot may be the despotism of ignorance, faction, and organized meanness.

When England enlarged the franchise in 1867, Sir Robert Lowe said the first duty and interest of England was to educate its masters. Illiteracy is a present, pervasive, and potential peril. It threatens the overthrow of free institutions. It is a corrosive malady ning the vitals of the government. No evangel of "dynamite lagger" is the cure for this political pyæmia, but widely diffused, universal education, in alliance with Christian morality.

The removal of this mass of illiteracy cannot be effected by private benefactions, by denominational and State activities. The power and resources of the federal government should come to the aid of the States, unable of themselves to meet this emergency. This is a *national* question, more imperative than Mormonism or Chinese immigration or a Presidential election: unless rightly solved, we may have no President to elect. Let me reaffirm with emphasis, as an educator, a patriot, an American, that on universal education, on free schools, depend the prosperity of the country, and the safety and perpetuity of the Republic. The highest duty of a government is self-preservation.

HAVE WE A SCIENCE OF EDUCATION?

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HAVE we a science of education? is doubtless the most important question that can be asked the world's teachers to-day. If there is such a science, and it is to any good degree ignored, great injury must result to learners in school; but if on the other hand there is no such science, and there are no principles of education, — no properly arranged methods of teaching, — and if it is true that teachers are "crushing out naturalness" by trying to follow what they imagine is scientific, then all our much-vaunted talk about systematic education and scientific methods is mere foolishness, and the sooner it ceases the better it will be for the school, as well as for the reputation of those who are recognized leaders in educational thought. It is obviously impossible, in a single article, to go through the whole range of knowledge and show all parts of an educational psychology; we can only point out where it may be found.

Education may be defined to be the harmonious development and training of the spiritual, mental, and bodily powers of a human being. The mind has faculties considerably known, and in general the order of its healthy growth is understood. Now, if but a few of these facts have been properly arranged, we have the beginnings of the science of education; for a science consists in a logical classification of knowledge on any given subject. As in the development of civilization, the ornamental came before the useful, so in the development of an educational science, the empirical comes before the scientific. If the laws of human growth were not somewhat accurately understood, it would be useless to attempt to formulate them into logical order; but they *are* understood and *have been* scientifically arranged.

It should be remarked at the outset that there is a great difference between teaching and education. The first is specific, the second is general. Everything educates, but everything does not teach. Teaching draws from a spring, while education furnishes this living fountain of human thought with the sparkling waters of knowledge and skill. It is not claimed that education is a perfect science; for if it were, then all teaching would always set the same subjects before learners, in the same manner, under the same circumstances. A real teacher will have his own manner, but he cannot have his own method; for this comes from a universally possessed science, that can never become the property of any single individual. He may direct the attention of another by means of his senses, but in so doing he does not necessarily become an educator: he only furnishes the means of education. Personal influence and experience always educate: a teacher directs; he may also educate, but he is not an educator *because* he is a teacher. We shall now endeavor to point out the outlines of that science which is already exerting a most powerful influence on the human race, and at no distant day is destined to dominate all other sciences and all professions.

The laws of mental growth must be defined and classified in order to lay the foundations of this science. Among the more important of these we note the following.

The powers of observation, comparison, choice, and memory are developed at a very early age. Perception is antecedent to memory, and memory is strong before imagination, understanding, and intuition. Abstraction comes before reasoning, and last of all the pure reason is developed. Consciousness and attention are only attributes, not faculties, of the mind. They are only forms of mental activities. The power of attention underlies all the faculties of the mind, and should be cultivated at the very commencement of a systematic course of educational training. Conception, or the power which the mind has of making anything a distinct object of thought, is also not a distinct faculty, but only grows with the growth of the faculties.

It follows as a consequence that the learning of absolutely isolated facts is not appropriate at an early age; neither is anything to be taught which depends upon the activity of reason, reflection, and judgment. Mathematics and geography, except elementary home lessons, cannot be required of young children. It is impossible for a young mind to associate ideas sufficiently so as to realize the world as a whole. He may repeat words, for verbal memory is active; but when he says, "The world is a globe twenty-five thousand miles in circumference," or when he says, "The equator is a plane, equally distant from either pole, cutting the earth into two similar parts," he cannot possibly realize what the words mean. Very early, all the studies that bring into play association by similarity and contrast, and the comparison of one thing with another, can be taught. The concrete should be exalted and the abstract kept out of sight. The child should be constantly led to perceive, observe, compare, and conclude. Very early, the memory should be strengthened by requiring pupils to accurately repeat what they have been *taught*. The imagination should be early cultivated by leading the learner to associate ideas of objects and express the results of his observations.

It is thus that the science of education causes a correct classification of the studies, proper to be pursued in a school, to be made; and the scientific teacher sets before his children the proper mental food at the proper age. Being so well adapted and so well prepared, it is eagerly taken and assimilated, and by it the strength of the mind is rapidly promoted. On the other hand, the unscientific teacher, with no knowledge and less care concerning the capabilities of his pupils, places requirements before them of such a character as to disgust them with learning. The result is ignorance and imbecility. There is a science of feeding both the body and mind. If strength is required, careful attention should be given to the wants of each.

The following principles are believed to have been derived from the nature of the mind and the early growth of its powers:—

1. Culture is worth infinitely more than a knowledge of isolated facts.

2. Culture is obtained by exercise.

3. Exercise, at first, will attend to the perceptive faculties, and develop them by the cultivation of habits of seeing things at hand. This objective perception, or what is usually called simple perception, soon grows and matures into real strength and force. Closely connected with this exercise will be the development of habits of seeing things not at hand, or subjective perception, or the imagination. This under proper education becomes as strong at an early age as at any time during the entire life.

4. While the perceptive faculties are being cultivated, the memory should be furnished by association and suggestion. This will be accomplished by grouping of similars, by contrasts, by cause and effect, and by contiguity of time and place.

In these ways and in this order the *early* culture of the mind will be certainly promoted. It is the order of growth, and must be followed in any systematic course of education. It must be remembered that observation must come before comparison, and comparison before conclusion; that only by processes of comparison and generalization can hypotheses be inferred: therefore a hypothesis cannot be demanded until after long-continued and patient study has developed the power of drawing correct conclusions.

Froebel's ideas of forms of cognition, as shape, size, and relative position, come before ideas of forms of life, as tables and chairs; and these again come before ideas of beauty, as cubical and spherical objects and their symmetrical combinations.

Let us see how the ideas of duty, authority, and order can be developed: —

1. The earliest evidences of human existence are the feelings.

2. From feelings come ideas.

3. By means of a logical arrangement of ideas, thoughts are produced.

4. From feelings, ideas, and thoughts come volitions.

5. When feelings, ideas, thoughts, and volitions are properly regulated and carried forward into a line of action, the relation of cause and effect is seen and judgment is developed.

6. By the decision of our judgment we are forced to enact laws, in consequence of which we have authority and order. It follows, therefore, that before a child can be taught to respect authority and love the order which it produces, and reasonably obey the laws which are made for his government, his feelings, ideas, thoughts, and volitions must be cultivated, in order to see clearly the relations of cause and effect, and cultivate in him habits of reasoning and judgment. Before this point is reached, his unreasoning obedience may be secured; but after his judgment approves what he sees, he has a logical relation of cause to effect, he knows what *right* is, and for the first time in his life he understands the meaning of that great word "duty."

It can now easily be seen that true education is not a spontaneous thing, but comes up from known principles of universal acceptance. It is progressive, keeeping pace with the healthy growth of the mind. The true teacher will wait until the proper growth has been attained before certain things are taught and certain methods pursued. He studies carefully the whole being of man and discovers the laws of its harmonious action, just as a skilful engineer thoroughly studies the mechanism of his engine, and knows how wheel must fit to wheel; how valves, pipes, boiler. condenser, and governor must be arranged to produce the most effective results. There is much to learn concerning the *parts* of the body, mind, and soul, and there is much more to learn concerning the conditions of their harmonious action and healthy growth; but enough is known to warrant us in formulating certain fundamental propositions which have been and always will be underneath the whole science of education. No teacher can ignore one and still be scientific in his methods. All real educators have recognized them, and always will; for they stand in the same relation to a human being that Newton's laws of gravitation and motion do to the physical universe. These laws existed ages before Newton lived; and worlds and suns, obedient to them, performed their revolutions around their centres. So, many true teachers have been guided by correct principles in educating the human race before laws were correctly arranged and published to the world. The following principles seem to be established as lying underneath the education of our entire nature: —

I. Strength comes from exercise.

II. Growth must be from within outward.

III. The basis of development is the *self*-activity of the child. This self-activity is of two distinct forms: from without inward, or receptive and acquisitive; and from within outward, or productive and expressive. These forms of mental training must necessarily go hand in hand; for it must always be true that objects must supply the self-activities of the mind, while it will also always be true that growth must be from within. We therefore conclude that —

IV. Education is not creative.

V. The ultimate aim of education is the perfection of our entire nature.

VI. This perfection can only be reached by the harmonious growth of all the faculties of the soul, mind, and body.

VII. In growth towards perfection, the various powers of our nature develop in a fixed order, subject to unchanging laws.

The following laws of teaching may be derived from the above principles: —

1. Correct procedure must be from the known to the unknown, in regular steps.
2. Knowledge alone does not educate.
3. Only what the mind appreciates by its self-activities can it really receive.
4. In examining objects and ideas we must proceed from wholes to parts. In building up ideas we must go from parts to wholes.
5. All instruction must necessarily be intuitional.
6. Knowledge must necessarily come before discipline.
7. A fundamental law of success in teaching is freedom of thought.
8. The first object to be attained in mental growth is the obtaining of knowledge; the second step is comparison; and the last is classification.
9. The objective method of instruction must always come before the subjective; the objective to definition the source from whence the subjective starts.

The following rules are naturally deduced from the foregoing principles and laws; they should guide the teacher always in presenting knowledge to the minds of beginners: —

1. The order of the growth of the powers of the mind must be known and followed.

2. Experience should be every teacher's best guide, if he knows how to observe.

3. Requiring the recitation of memorized words is wrong until the thoughts underneath the words *have been taught.*

4. Never do for a learner what he can do for himself.

In teaching, the concrete will come before the abstract, particulars before generals; at first the inductive before the deductive, the known before the unknown, and the practical before the theoretical. In more mature years, the theoretical may come before the practical, and the unknown before the known. In other words, inductive methods are always to be used at first, while deductive ones may be practised in more mature years.

It is universally true that the real teacher is first certain that what he teaches is adapted to the needs of his pupils, and then it is also universally true that he *teaches* it. After he is certain it is thus brought within the comprehension of the learners, he is very particular to have it thoroughly memorized. He insists on the reproduction of the very words. No one can be more uncompromising than he in rigid requirements as to accurate repetition. Scientific education and educators have been often held up to ridicule because frequently they have been poor disciplinarians. An instructor may prepare the ground and sow the seed thoroughly, but he may fail to plough it in. The utmost care should be given to this part of practical education.

What we have said has necessarily been much condensed, because we have aimed only to present a bird's-eye view of a vast territory. The more minutely each separate division is examined, the more will the explorer become convinced that order and beauty exist in every part. Not only is this whole science grand, but its elements, which go to make up by order and arrangement its entire whole, are exceedingly interesting. The study of the growth of a human being must always be a most fascinating pursuit. How shall we measure the influence of him who directs the streams of thought and action? By what words can he be commended who tunes the strings of the human harp so that from it can be struck the magnificent chords of a successful life? The object of all education is power. There is no power without training and knowledge. Correct knowledge leads directly to goodness, therefore knowledge is the great aim and end of the science of education.

NOTES ON THE DEVELOPMENT OF SELF-CONSCIOUSNESS.

FROM "DIE SEELE DES KINDES," BY PROF. WM. PREYER.

TRANSLATED BY MARION TALBOT.

BEFORE a child can understand that the parts of his body which can be felt and seen belong to him, he must have had a great number of experiences, associated for the most part with painful sensations.

But little help in developing the notion of the Ego is gained from the first movements of the hands, which the infant puts in his mouth at an early period, and which must give a different sensation from other objects when he sucks them. The fact that my child for months pulled at his hands as if he would tear them apart, and struck at his head when experimenting with his hands, shows how far removed from self-consciousness these movements are. At the end of the first year my child had a predilection for striking hard objects against his teeth, and took delight in grating his teeth. On the four hundred and ninth day, when he was standing in his crib and holding on to the railing, he bit his bare arm so hard that he instantly screamed with pain. The marks of the teeth could be seen for a long time afterward. The boy did not bite his arm a second time, but later he bit his finger, and inadvertently his tongue.

The same child, who liked to hold a cracker to the mouth of any one he was kindly disposed towards, offered one to his own foot in the same way, and sitting on the floor, held the cracker to his toes, evidently taking pleasure in doing so. This occurred several times in the twenty-third month.

The child cannot distinguish himself from surrounding objects even when the faculty of observation is considerably developed. Vierordt thinks that a separation between general feelings and sensations which can be referred to the external world occurs in the third month. My observations do not admit of this conclusion; for even if this separation begin so early, it is not perfected until later. Even in the ninth month the little hands eagerly touch the feet, although no longer so eagerly as before, and the toes are put in the mouth like a new toy. In the nineteenth month the child still has no clear idea of all that belongs to the body. My child had dropped a shoe. I said, "Give me your shoe." He stooped, took hold of it, and passed it to me. When I said, as he stood upright, "Give me your foot," thinking that he would stretch it out towards me, he grasped at it with both hands, and labored long in the effort to get hold of it and pass it to me.

How little the difference between the parts of the body and external objects is recognized even at the end of the first year, follows from some singular experiments which the child tried quite independently. He sat near me at the table, and struck it frequently and quickly with his hands; first soft, then hard, next hard with the right hand alone, and then suddenly hit his mouth with the same hand. After holding his hand to his mouth for a short time, he struck the table again with it and then suddenly struck his head above the ear. This experiment seemed for the first time to impress the child that it was one thing to strike one's self, one's own hard head, and another to strike a foreign hard object (forty-first week). In the thirteenth month the child still hit his head while experimenting with his hand, and seemed astonished at its hardness. In the sixteenth month he was in the habit of pushing and striking the left thumb against the left side of the head, and the right thumb against the right side, while holding the fingers outstretched, which made him open his eyes and caused a singular expression of wonder. This movement is neither imitated nor inherited, but learned from experience. The child without doubt gains experience in a similar way in regard to holding the head, shaking the head, resistance of the body; perhaps, too, management of the head. The objectivity of the finger became known a short time before, when it was involuntarily bitten; for in the fifteenth month the child bit his finger so hard that he cried with pain. Pain is the most powerful master in learning the difference between subjective and objective.

Another weighty factor is the perception of a change in all kinds of tangible objects near at hand caused by personal activity; and the day in a child's life which is most remarkable psychogenetically, and most important in every respect, is that when he for the first time experiences the connection between a movement executed by himself and the sense impression which follows. The noise which is caused when paper is torn and crumpled is still unknown to the child. He discovers the fact that he continues to have the perception of a new sound whenever he keeps on tearing up paper into little bits, and he labors over the experiment daily until the connection has lost the charm of novelty. There is as yet no clear insight into the causal nexus; but the child has had the experience that he himself can be the cause of a combined perception of sight and sound, which is so far regular, whenever he tears paper, that on one side diminution in size appears, and on the other a noise. The patience with which this occupation is pursued, especially from the forty-fifth to the fifty-fifth week, is explained by the satisfaction of perceiving that there is such a thing as cause, and that such a remarkable change as that of a newspaper into bits may be accomplished by one's own activity.

Similar occupations which are repeatedly undertaken, with results which are inconceivable to an adult, are shaking keys on a ring, opening and shutting a box or purse (thirteenth month), drawing out, emptying, filling, and pushing back a table drawer, piling up and scattering earth and gravel, turning over the leaves of a book (thirteenth to nineteenth month), digging and scratching in the sand, carrying foot-stools hither and thither, placing shells, stones, and buttons in rows (twenty-first month), emptying and filling bottles, bowls, and watering-pots (thirty-first to thirty-third month), throwing stones into the water. The zeal and eagerness with which such apparently aimless movements are conducted are noticeable. The satisfaction which they afford must be very great, and probably rests upon the feeling of strength produced by means of movements caused by the child himself (changes of place, position, form, etc.), and upon the recognition of causality.

This is not playing merely, though it is called so, but experimenting. The child, which at first took delight only in form, color, and motion, has become a causal being. Thereupon the development of self-consciousness enters a new phase; but it is not yet perfected. Vanity and ambition appear as factors of further improvement. Attention to the parts of the body and pieces of clothing, which are the objects nearest the child's gaze, especially promotes the separation in thought of the child's body from other things.

I particularly observed the way in which the child looked at his body, and also at his reflected image. In relation to the first I made the following notes: —

Seventeenth week. In grasping movements, which are still imperfect, the gaze is directed partly towards the object, partly towards the hand, especially if it has once grasped correctly.

Eighteenth week. The very attentive observation of the fingers in grasping is remarkable, and should be daily noticed.

Twenty-third week. When the infant, who frequently moves his hands aimlessly about in the air, by chance grasps one with the other, he watches attentively both hands, which are often casually clasped.

Twenty-fourth week. The child fixes his eyes for several minutes upon a glove which he himself holds in his hands, and changes the fingers which grasp it.

Thirty-second week. The child, while lying on his back, often looks at his legs stretched upright, and more especially at his feet, as if they were something not belonging to him.

Thirty-fifth week. In every possible position the child tries to seize one foot with both hands and put it in his mouth, and frequently succeeds. This apish movement seems to afford him peculiar pleasure.

Thirty-sixth week. The hands and feet are no longer watched so frequently without special cause. His gaze is attracted by other new objects, which he attempts to grasp.

Thirty-ninth week. When in the bath, the child sometimes looks at and touches his skin with evident delight, and sometimes gazes at his legs, which he bends and stretches in every direction.

Fifty-fifth week. The child watches attentively, for a long time, a person who is eating, and follows every movement with his eyes; reaches out towards the person's face, and looks at his own hands after striking his head. He likes to play with others' hands and takes delight in their motions, evidently comparing them with those of his own fingers.

Sixty-second week. He gazes continuously at his own fingers, and plays with them as if he would tear them out. One hand is pressed by the other flat upon the table, so hard as to cause pain, as if it were a strange plaything, and is constantly looked at with an air of wonder.

Thereafter the child's inclination to watch the parts of the body noticeably abated. He knew them by their form, and had gradually learned to distinguish them from extraneous objects as parts of himself; but by no means had he as yet reached the thought, "The hand is mine, what was taken hold of is not," or " The leg belongs to me." The fact is that from two causes the child has become used to these perceptions of sight and touch, and overlooks them in using his hands and feet: first, they always recur combined in the same way; and second, the visible parts of the child's body no longer excite the visual centre so strongly, in consequence of frequently repeated observation. He does not as formerly consider his feet and hands unusual, while every object which he touches, sees, or hears is interesting and strange to him. In this way arises the definite distinction between object and subject in the child's intellect. At first the child is still new to himself, that is to say, to the apparatus of ideas which is developed only after birth; later, after he has learned to know himself, and no longer looks upon himself as something novel, he has an obscure sense of the Ego, and acquires the notion of the Ego through further abstractions.

The progress of the intellect in watching the reflected image confirms this conclusion. The child's demeanor towards his image points out unmistakably the gradual growth of self-consciousness from a state in which objective and subjective changes are not yet distinguished. A child that in the ninth week laughed at his image in the glass was undoubtedly in the latter state, and his laughter was caused by the brightness of the glass. Another child laughed when he saw himself in the glass in the twenty-seventh week. These cases were observed by Sigismund.

Darwin observed (1840) of one of his sons, that in the fifth month he repeatedly laughed at the reflections of his father and himself in the glass, and thought them real bodies. But he was surprised that his father's voice came from behind. "Like all infants, he much enjoyed thus looking at himself, and in less than two months perfectly understood that it was an image; for if I made, quite silently, any odd grimace, he would suddenly turn round to look at me. He was, however, puzzled at the age of seven months, when, being out of doors, he saw me on the inside of a large plate-glass window, and seemed in doubt whether or not it was an image. Another of my infants, a little girl, when exactly a year old, was not nearly so acute, and seemed quite perplexed at the image of a person in a mirror approaching her from behind. The higher apes which I tried with a small looking-glass behaved differently: they placed their hands behind the glass, and in doing so showed their sense; but far from taking pleasure in looking at themselves, they got angry and would look no more."

The first-mentioned child, at the age of not quite nine months, associated his name with his image, and turned towards the mirror when his name was called, even when it was at no small distance from him. At first, when recognizing his image, as in recognizing others, he exclaimed "Ah!" as grown people are wont to do when astonished.

I made the following observations of my boy: —

In the eleventh week he did not see himself in the mirror. When I knocked against the glass he turned his head in the direction of the sound, but his image did not make the slightest impression upon him.

In the fourteenth and fifteenth weeks he looked at his image with perfect indifference. His glance was directed towards the eyes in the image, without any expression of pleasure or displeasure.

In the sixteenth week the mirror was still either ignored or regarded with indifference.

At the beginning of the seventeenth week, on the one hundred and thirteenth day, the child looked at his image with unmistakable attention, and his countenance wore the same expression with which he was in the habit of gazing at a strange countenance. It was evident that he observed himself for the first time, but the impression seemed to awaken neither pleasure nor displeasure. Three days later the child positively laughed at his image.

When I held the child before the mirror again in the twenty-fourth week, he saw my image, became very attentive, and turned suddenly to me, apparently to convince himself that I was near him.

In the twenty-fifth week he for the first time stretched his hand towards the image, thinking he could grasp it.

In the twenty-sixth week it pleased the child to see me in the glass; he turned towards me and compared the original with the image.

In the thirty-fifth week the child reached out towards the image with eagerness and interest, and was astonished when his hand touched the hard, smooth surface.

This continued from the forty-first to the forty-fourth week; the child regularly laughed at his image and tried to seize it.

All these observations were made before a full-length mirror. But in the fifty-seventh week I held a hand-glass close to the child's face. He looked at his image and then put his hand behind the glass, moving it about as if in search of something. He next took the glass himself, looked at it, and touched it on both sides. When I held the glass before him again after several minutes, the same manœuvres were repeated. This agreed with the observations made by Darwin on anthropoid monkeys, which I have mentioned.

In the fifty-eighth week I showed the child his cabinet photograph under glass in a frame. He turned the picture about like the hand-glass. Although the photograph was much smaller than the reflected image, they seemed to him to be alike. On the same (four hundred and second) day, I again held a hand-glass before the boy, showing him his image; but he obstinately turned away, again like an intelligent animal. Here the incomprehensible in a literal sense was troubling him; but very soon came the insight which the quadruped lacks. In the sixtieth week the child saw his mother in the glass, and when asked, "Where is mamma?" pointed to the image, and then turned laughing to his mother. Whereas the child formerly made cunning mistakes, there is no doubt but that at this age — fourteen months — the original and the image were distinguished as such, and the photograph no longer excited surprise.

Nevertheless, even in the sixty-first week the child tried to touch his image, and licked the glass in which he saw himself, and also in the sixty-sixth week struck it with his hand. In the following week I saw the child making faces for the first time before the glass, and laughing at it. I stood behind him and called him by name. He immediately turned round, although he saw me plainly in the glass. He evidently knew that the voice did not come from the image.

In the sixty-ninth week signs of vanity were perceived; the child frequently took pleasure in watching himself in the glass. If any one placed something on his head and said "pretty," his expression changed and became peculiarly self-satisfied, his eyebrows were lifted, and his eyes were dilated.

In the twenty-first month the child put on a piece of lace or embroidery, let it hang from his shoulders, looked around as it trailed, stepped forward, and then stood still, intent on making new folds in it. Here monkeyish imitation and vanity are mingled.

In the seventeenth month the child showed a predilection for standing before the glass and making grimaces; these experiments with the mirror were therefore discontinued. They point out the transition from the condition in which the infant cannot see clearly, and has no feeling of self, to that of the developed Ego which consciously distinguishes itself from its own image, as well as from other people and their images. But there is for a long time a certain cloudiness in respect to pointing out objects. In the twenty-first month the child laughed at his image and pointed to it when I asked, "Where is Axel?" and to my image when asked, "Where is papa?" But when questioned seriously, the child turned about with a doubtful air. One evening I placed a large mirror near my child's bed when he was asleep, in such a position that he should look in it immediately on awaking. He saw his image directly after he awoke; appeared greatly astonished by it; stared at it; and when I asked, "Where is Axel?" he pointed, not to himself, but to his image (six hundred and twentieth day). In the thirty-first month it still gave him great pleasure to watch his image, and he laughed at it continuously and heartily.

As is well known, animals conduct themselves quite differently in this respect. A pair of Turkish ducks kept themselves quite apart from other ducks. When the female died, to my astonishment the drake betook himself to a cellar window in which could be seen his reflection, and stood there daily for hours at a time. He evidently thought his image was his lost companion. A young cat before whom I held a mirror seemed to take the image for a second cat; for when the mirror was raised, she went behind and around it. Many animals are frightened by their images, and run away.

The discovery of their shadow also causes fear to little children. At first my child showed signs of fear at his shadow, but in the fourth year took delight in it, and to the question, " Where does the shadow come from ? " gave this remarkable answer, " From the sun."

All these steps in advance, which can be followed separately only with great care, constitute converging lines which culminate in a perfect sense of the definiteness of personality and its limitation by the external world.

Such are the results which pure physiological observation gives. But such observation has not the additional power of combining a unity or indivisibility or uninterrupted permanence in the child's Ego with the facts which I have established with great certainty and recounted in this chapter.

What is meant by saying, "The child's feet, hands, and teeth seemed like strange toys to him," and "The child bit his own arm as he was in the habit of biting unknown objects"? "Seemed" to what? What in the child "bites"? The subject in the head is evidently different from that in the body. The Ego of the brain is different from the Ego of the spine. The former sees, hears, tastes, smells, and feels, the latter only feels ; and both are at first quite distinct, so long as the brain and spine are only slightly associated organically, and not at all functionally. Brainless infants, which have lived for hours and days, could suck, scream, move their limbs, and feel ; which is proved by the fact that if hungry, they stopped crying when an object suitable for sucking was placed in their mouth. On the other hand, if a human being could be born with a brain and without a spine and live, it would not be able to move its limbs. Accordingly, if a normal infant plays with its feet or bites its arm, therein lies a proof of the independence of the brain with its perceptive apparatus from the spine. And in the fact that brainless new-born human beings and animals move their limbs, scream, suck, and act reflexively like sound ones, lies the proof of the original independence of the spinal functions from those of the brain.

But unquestionably even the brainless living child, which sucks, screams, moves its arms and legs, and distinguishes pleasure from pain, has an individuality, an Ego. Accordingly, two Egos must necessarily be assumed in the child which has both brain and spine, and imagines that its arms are to be tasted and bitten. But if two, why not more? At first, when the centres of sight, hearing, smell, and taste in the brain are as yet imperfectly developed, each one perceives for itself, since perceptions in the different departments of the senses are not connected with each other. In the same way the spine does not share with the brain, or at least very imperfectly, what it feels, as for example a pin prick; for new-born children do not usually react under such circumstances. Only after frequent and simultaneous occurrences of different sense impressions, such as tasting and touching, seeing and touching, seeing and hearing, seeing and smelling, tasting and smelling, hearing and touching, are the intercentral connective fibres developed; and then for the first time can the different centres of representation — makers of the Ego, as it were — lead to the formation of the unitary Ego, which is quite abstract, just as they lead to the formation of the ordinary idea.

This abstract notion of the Ego, which is peculiar to the thoughtful adult, arises only as other notions arise, — namely, through single representations from which it results; as for example, there is a forest only when there are trees. The Egos, subordinated to the separate departments of the senses, are not as yet blended in the little child, because it still lacks the necessary power of abstraction. On account of the small number of cerebral connective fibres, a single excitation cannot be accompanied with an excitation of the sensory centres, on which as yet few impressions have been made by the memory.

The special conceptions given by the various senses have the common attribute that they are only brought about in time, space, and causality. This analogy presupposes similar processes in each sensory centre of the highest order in the brain. Excitations of one of these centres easily cause similar accompanying excitations of centres which have frequently been excited together with them by means of objective impressions; and it is this similar accompanying excitation, extending over the brain centres of all sensory nerves, which occasions the united conception of the Ego.

The Ego, according to this view, cannot be unitary, indivisible, and uninterrupted. It is present only when the separate senses from which it is abstracted and their Egos are on the alert. It disappears, for example, in dreamless sleep. Ordinarily it is present when the centro-sensory excitations appear most strongly; that is, when the attention is exerted.

But the Ego is still less a sum, for that presupposes an interchangeableness of the component parts. The place of the seeing Ego can be filled by another Ego just as little as that of the hearing or tasting Ego can be. The sum of the separate leaves, blossoms, stems, and roots of a plant is far from making the plant. They must be combined in a peculiar manner. So it is not enough to add the common characteristics in the separate sense conceptions, in order to obtain the regulating and controlling Ego. There results rather, from the increasing quantity and variety of sense impressions, a constant growth of the gray substance in the child's brain, a rapid increase of intercentral connective fibres; and in this way accompanying excitations, called association, are facilitated, which unite sensation with will and thought in the child.

This union is the Ego; the perceiving and feeling, longing and willing, observing and thinking Ego.

THE MACHINE IN EDUCATION.

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The American variety of the human species might be fitly characterized as the man who works with a machine. Great is the Yankee's faith in combinations of wood and iron, geared together, and provided with self-acting feed attachments, regulators, indicators, and what not. Does a demand arise for any given result, be it in the haunts of toil or in the fields of fancy, be it the product of the factory or the fruit of intellect,

> "He 'll make the thing, and the machine that makes it."

This machine spirit is, from one point of view, *the* phenomenon of the age. The age has an insatiate demand for "methods." Everybody believes he can do anything, if only he can adopt the very latest improved "method" of some other body, be it in making shoes or in conducting a revival, painting a picture or running a campaign.

But there are things which no machine can fashion, there are results which will come from no mere "method," there is work unto every moment of whose endurance must come the patient hand, and there are products which are of no value unless brains were mixed in the making. It is to point out some encroachments of the machine spirit on education that I address myself.

I shall consider: I. Organization. II. Government and Discipline. III. Instruction.

I. ORGANIZATION.

In the organization of schools, of systems of supervision and control,— city, county, State, and national,—the age is unique. Turn to any statistical report, any encyclopædia, every place or country is described as having a "system" of education, more or less perfect.

Unhampered by traditions, in a virgin soil, the newer States and communities are in position both to profit at once by the completed results of the toils of many before us, and to make experiments. Their danger is that they forfeit the advantage of their position by assuming burdens unfit for their immaturity; forgetting that the law of nature is development, not adoption, and fancying there is virtue in high-wrought and logically perfect "systems" of themselves.

We *must* have organization? Doubtless, much of it, much more than we have. There is a wide field for purely mechanical appliances in the management of education, private or public.

But none of these things are education, — they are not even the essential conditions of true education, — else were all the past wofully uneducated; and no one can be more short-sighted and self-deceived than he who expects the regeneration of society and the development of national character to come out of these things. It is poor wisdom that deceives the great and careless public into a blind reliance upon any system of organization and administration, however perfect on paper, and however hearty and intelligent the zeal that is endeavoring to realize the scheme.

I recognize the disheartening fact that there is a kind of practical necessity in the case, which makes ideal results impossible. I know that the public school must always be largely a machine; that it is and must be framed for averages; that the individual must suffer in its operations; that there is necessity for its rigid rules, its hard and galling mechanism, and wisdom in that effort to lift up above their purposed endeavor the unwilling and uninspired pupils, which bring such a drag upon its working.

Yet there are certain very obvious evils connected with the graded schools, which must be pointed out again and again. The ungraded schools are not fairly subject to criticism under this head.

Let us only hope that in bringing into use the "course of study" recommended in many quarters, great tact may be exercised to avoid the evils suffered already in the graded schools. Chief of these is the ordinary system of promotion. The characteristic of machinery is that it cannot take account of the exceptional. But in school work, in young communities more particularly, the exceptional is the rule No system that depends solely or mainly on time, no plan that makes examinations and class standing the sole criteria, however frequent the quizzing, however ingenious the scale of marks, can furnish an adequate test of fitness for advancement. The free judgment of a competent teacher is worth them all, not only in point of justice, but in likelihood to secure the real ends of school labor. And here we touch the root of all evils connected with graded schools. The tendency of all devices is to obscure the *end* of effort. The great need of every school is that its head and all his helpers shall be continually asking and answering that hard question which the hard-headed public *will* ask, What is the *use?*

II. Government and Discipline.

When we enter the realm of discipline, and begin to consider that wide field of education that has to do with the moral nature, manners, and habits, we are less struck by the perception of failure, simply because so little is attempted.

Can a code of rules transform a boy's heart? Can any number of marks develop refined manners? Can infinite reportings to the principal eliminate stubbornness, or eradicate sloth? Can any elaborate system of reprimands, suspensions, and expulsions strengthen the weak will, waken the dormant power of self-control, train the wayward sense of honor? Never!

Yet are not good and conscientious teachers daily laboring at this hopeless task? and are they not shut up to this futile endeavor by the necessities of the "system"? Moreover, it is easier to fall back upon a code of rules than to solve a moral problem; it costs less of heart pain and nerve weariness to send the erring one to the distant seat of awful authority in the principal's room, or the superintendent's office: and then, the overworked teacher has not the time. I suppose, from my personal experience, that quite half of the boys and girls in our schools are not really "nice." From our thrones on the rostrum, we see in every corner stupid faces, leering and repulsive brows, sensual mouths, the sour and unhappy, the cold and indifferent. Will a machine system of government make good and happy young men and women out of this material? *Does* it? Is there not a growing army of vicious, disrespectful, tainted children in every town and village, — not truants and stay-at-homes, but legitimate products of the public school? Is this the best attainable, fellow-teachers?

The moral nature cannot be reached thus. Personal care, often enough painful and laborious, heart-ache, anxious thought must be lavishly contributed by the teacher, if he expects to do his whole duty. You must have rules? Doubtless; but you must not depend upon *them* to quicken the dull sensibilities, search out the secret source of bad temper, chasten away the impure thought, make the child as nearly as possible what it might have been if evil had not thwarted the good design of God in its birth.

Machine discipline cannot train the growing nature, but it can secure two things to which a vastly exaggerated importance is attached by some: it can secure stillness and outward obedience. This kind of thing is held up for our admiration and helpless envy. To this Sahara of paralyzed enthusiasm, of blunted interest, and of extinct curiosity, we are to look for the sweet fruits of culture. Shades of the great and glorious teachers of the past — men bursting full of living force, resonant with ringing enthusiasm, charged high with the leaping electricity of knowledge — rise and rebuke this absurdity, this emasculated and benumbing tyranny of the non-essential!

But these things tell on the community. Teachers who do these things are spoken of with great respect. Herein lies a great temptation. These things, hard as they are to accomplish, and great as is the waste of time and energy spent on them, are easier to attain than is true education, — the rapid, joyous communication of real knowledge, the kindling of the child's whole nature, its wise and judicious direction in the proper course, the contact of mind with mind, of heart with heart, — and these things can be seen and admired of men much more than the true process of growth.

For myself, I own with abasement I never could treat living flesh and blood as if it were mere plastic clay. Childhood to me has sacred rights. Rather would I fail in many technical details than do aught to stifle budding originality or suppress individuality. Rather would I choose many mistakes in facts if I could be sure that healthy thirst for knowledge, vigorous intellect, keen perception, and strong love of what is beautiful and good should be found in all who have called me teacher. The object is more than all the means. Perfection of detail too often means loss of true advantage. Yet I believe neither need be lost. There is a more excellent way.

III. MACHINE METHODS IN INSTRUCTION.

This is the main point; for teaching is, after all, what all systems are for. Organization, government, discipline exist because of, and ought to be modelled by the necessities of, the teaching; and it is when they are not so directed and fashioned that they become obnoxious to our criticism. But the machine has gotten far into the work of teaching itself. Let us be specific here. Mere text-book grinding, parrotism, book-in-hand recitation hearing, cramming unappreciated facts, — these absurdities we have all renounced in theory, and most of us avoid in practice. I do not mean these, but other phases of the machine in more pretentious guise.

Any idea in education, however good, may be made mechanical in operation, and most ideas have suffered that fate. Our schools, our best schools, are full of tag-ends of the so-called "science of education," scraps of "systems," bits of new "methods," caught from some much bepuffed "manual" of teaching, carried home as treasures of great worth from a brief sojourn in some normal school. There is a demand among teachers for the latest new-fangled "method," and a continual rivalry among publishers to introduce their latest patent protected system of something or other. All this is no sign of progress. It is sure evidence of the machine spirit. It seems to be peculiarly characteristic of this mechanical age to seize upon every new suggestion, fruitful in itself, to reduce it to drill-master routine, and to run it at high pressure.

The essential difference between true teaching and machine teaching is that there is individuality in the former. Its ways and means are not servile copies from another, but are evolved from the inner sources, are devised for the occasion. "Principles are eternal, methods are not."

If you will think of it, there is a wonderful amount of machine work in our best teaching: analyzing problems *ad nauseam;* parsing by model; insisting always on complete sentences; the exhaustive study of diacritical marks; giving back the question in the answer; dreary reading and rereading of a passage that never meant much, to get the exact shade of inflection; much care for the pronunciation of ă and thŭ, rather than for the meaning; vain repetitions daily of long formulas called rules, as the only logical justification of every fresh occurrence of a familiar fact in language; object lessons cut and dried beforehand and doled out in the inane imitation of baby-talk, or senseless adoption of fragments from some kindergarten manual, under the impression that we are following in the footsteps of Pestalozzi and Froebel; forcing children's talk into the stilted formula of the text-book, forgetting that for school use, clay is better than marble,—these are a few examples. Wherever the school-boy, when helped at home in his lessons, merely grows befogged and says, "That is not the way our teacher does it"; wherever the pupil gladly escapes from his Latin and Greek; wherever the standard argument for a specified course of study or for the ways of an individual teacher is that they are "valuable for discipline,"—there you may be sure the machine is in full operation.

The gist of Grant White's criticism on our public schools, so far as it pertained to the results of instruction merely, was just this: That the schools were drifting from their true aim; that, given up to machine formulas, managed here by devotees of impractical system, there by immature reliers on new copyrighted methods hastily acquired at institutes and normal schools, they failed to produce that solid and tangible familiarity with primary knowledge that was once their sole aim. This, too, is the residuum of truth in the Norfolk County report. This is the significance of the Quincy idea, which is making such a stir among us. For teachers, the lesson of Quincy is summed up in what Superintendent Parker says: "My main reliance is in slowly leading teachers to understand the principles of teaching. If principles are understood, methods will take care of themselves." This, too, is the meaning of that fresh tide of energy in the language teaching of our colleges, which begins to send its influence down into the high schools; which will erelong, I trust, sweep away the last remnant of that kind of teaching whose ideal was to ask seventy-six questions on the first three lines of the "Anabasis" and one hundred and twenty upon the first three lines of the "Æneid," and will forever deliver us from what Prof. Fisher, of Yale, calls "the 'gerund grinders,' who pretend that there is no such thing as thoroughness apart from their pedantic methods."

These ideas are none of them new. Indeed, some of them are the oldest in pedagogy. They are the ideas of Plato, of Comenius, of Ratisch, of Ascham, and of John Locke. It is one of the functions of great ideas now and again to break up the dead formalism into which things *will* fall. And it is a great mistake to suppose that what I call machine methods cannot produce very brilliant results. A skilful and energetic teacher can get a school into a fever of excitement by cooping words and phrases into little boxes, or wake intense enthusiasm in the endless repetition of "If John bought two pencils and three pencils, he bought the sum of two pencils and three pencils, which are, etc. Therefore, if John," etc.; hard and long application to what some people call "drill" will make a boy take an unmistakable pleasure in chasing a fugitive vowel through all the hiding places of Greek euphony; and months of such and similar perversions of mental faculties will enable a school to present the chance visitor a wonderful display of apparent knowledge. The more the pity: does it pay? do scholars trained in this way acquire culture? What is culture? Consider the word. Culture is preparing the ground that something may *grow* there. Are the sweet flowers of refinement and literary taste, the precious fruits of sound and independent thinking, to be expected from ground trodden down by the incessant hoof-beat of such drill? I suspect a great fallacy in that word "discipline." I imagine we shall yet recognize that to make discipline the prime object of any study is to commit a palpable absurdity. Soldiers are not drilled for the sake of drill, but to make good soldiers. No discipline can be worth acquiring which is not acquired while on the way, and as a means, to some higher and better object.

If I have at all made clear my criticism on certain prevailing tendencies, it will be seen that the remedy I would propose is a very old one, — to lay greater stress upon the individual. The individual teacher and the individual scholar, — these are the fundamental elements. Yet this is easily lost sight of.

What has made the great schools of the world? Their teachers. Why did Rugby send an influence through the English-speaking world? Because Arnold was there. Looking back to our earlier years, what do we recognize as having made us what we are? Not some famous school which we attended, not certainly some peculiar method,—even though method there was, and we still feel its influence,—but some man or woman who was *in* that school, who used that method, was behind it, and, greater than all the mere surroundings of his craft, impressed himself upon us. This element of school life, this "send-off," or impulse, without which we fail to utilize all the rest, we are losing, have already lost to a great degree. The district schoolmasters of the last generation, with all their faults and absurdities, had more personal power and pervasive influence than the well-equipped and systematic teacher of the present, who is too often merely an appendage to a machine.

The inevitable propensity of the human mind to seize upon the form to the neglect of the real is as fatal in teaching as in literature or religion; and machinism is as hurtful when it lurks in Grube's method, or when it lies behind the phonic and word method, as when it is embodied in the old alphabet and multiplication-table sing-song. It is as bad and less hopeful, when teachers worship the fetish of the object method, and the synthetico-inductive process, as when they give homage to mere *memoriter* task-work.

Individuality in the pupil is a result which would follow normally from a perfect system of education. That it is now rather the exception than the rule, is a bodeful sign of the tendency and value of our methods. The fact that comparatively few great men are now the fruit of "regular" training, that most of them come up some other way, is one of great moment to every educator. Who has not seen a pupil enter school, who has been taught at home till ten or twelve, full of originality, with curiosity intense, mind all awake, still retaining the quaint and expressive language of childhood, keen for the fact, careless of the form, bold in opinion, eager in expression? and who has not seen such a pupil, after two or three years of "drill," hesitating, timid, painfully accurate, dreadfully slow, the intellectual "go-ahead" all gone out of him? This is mental murder, a crime of the deepest dye. The majority of children's minds are hopelessly spoiled by their first three years in school. Get those three years right, and we can afford to take great chances thereafter. It is the recognition of this fact that gives such immense importance to primary instruction. And yet able school boards hire flabby-minded girls at $300 a year to teach at this end, and cultured men at $3,000 at the other; and an intelligent community thinks this is economy. What but intellectual dry-rot can be expected from such absurdity?

I believe there has been and is an overweening confidence in the efficacy of our education, public and private. I believe we have deceived ourselves and tricked the public with words. I see in the public prints the repeated expression of a growing distrust. I hear in the talk of men and women in their homes the voice of a spreading disappointment. I look for an awakening of public thought. In the eager interest with which attention turns to the few places where something really satisfactory seems to be doing, I discern the symptom of an anxiety which is not to be allayed. Reality must take the place of factitious and overestimated standards. Originality of nature must be sedulously preserved. Individuality in teacher and in pupil must be made an essential element in all instruction. The machine must give way to the intelligent adaptation of natural means to a well-defined end, under the guidance of principles established by a scientific process. Teachers must be selected and retained primarily for natural fitness. They must have generous culture; they must daily refresh their minds at the fountains of thought. They must mingle with the world and watch the world's ways. They must be more than mere teachers; they must become artists in human souls.

THE PRACTICAL.

THE popular war-cry among the mass of teachers, preachers, editors, and people generally, is "practical." Practical arithmetics, grammars, readers, and books of all kinds are in demand. Teachers at educational gatherings are hungering and thirsting for the practical. The profession of teaching has fairly run mad in search of the royal road which leads to the practical. If an educator succeeds in securing in his school results which commend themselves for their exceptional excellence, forthwith the school becomes the Mecca of educational pilgrims, who go, see, and ask how these things have come to be as they are; they want to know how to do them; they notice this teacher do this, and another do that; they go home informed and do the very same things, as they suppose, — and fail. Why? The answer is contained in the familiar anecdote told of a celebrated painter. A young man viewed with great delight the productions of the artist's skill in coloring. Being of a practical turn of mind, he asked the painter how he mixed his paints to produce such effects. Said the practical artist, "I mix my colors with brains." This reply contains whole volumes of commentaries upon the conception of the practical which is entertained by the masses of those who hasten with bated breath over the wide fields of observation in search of the talismanic "how to do it." In the above-recited tale, the young man was practical; the artist was practical; but their conceptions of practical were as wide apart as noonday light from midnight darkness. The one man desired to shine in the light of skill shed upon him by another; the other was illuminated by the light which proceeded from his own profound knowledge of the principles and practices of his art. The old maxim says, "There is no royal road to learning." In these days of longing and of professional unrest, the phrasing should be, "There is no royal road to the practical." The painter mixed colors with intellectual acumen; the schools that become Meccas are taught by brains, recondite philosophy, and efficient motives. There is nothing practical which does not rest in fact upon solid philosophy, discovered either by profound research or by intuition. If discovered by intuition, only the favored few who are to the manor born can hope to possess the truly practical; if discovered by study, the principles which underlie the practical can be attained by the masses, but only upon persistent and intelligent application. Michael Angelo did not see angels in rude and unhewn blocks of marble by inspiration, but by brains; Von Bülow causes his audience to listen to an entire orchestra discoursing Beethoven's symphonies while he sits alone before his piano; this is done not by inspiration, but by brains, — by his knowledge of the science and art of music. Webster was practical because he was learned in the principles of his profession. Sumner was practical because he legislated laws with brains. It is folly to look for the highest conception of the practical without knowledge of the science of that which is to be put into practice. The real cause why sentimentalism and charlatanism prevail so extensively in the profession of education is because teachers float from one manner or mode of practice to another. Any teacher whose practice is not founded upon solid science must be like a buoy whose chain is so short that the weight cannot anchor the buoy in the sands; such a buoy is here to-day and there to-morrow, as winds and currents sway it. A buoy floating its weight is not a type of signals that are to be placed upon a rocky shore, notwithstanding it looks safe for the present time; it is not a practical certainty. The practical is sound intelligence in effective motion. The practical has its foundations in esoteric principles of mind and matter in, and systems of, philosophy; these should be applied intelligently to the work that is to be done. Teachers who observe only the exoteric rites and ceremonies of good teaching are writing their names upon the scroll of fame which fades with to-morrow's sun.

AN INNOVATION IN COLLEGE GOVERNMENT.

THE faculty of Amherst College has made the suggestive proposition to the students that certain matters of discipline and control in the administration of the college be relegated to a sub-board of managers composed of four seniors, three juniors, two sophomores, and one freshman, a member of the faculty acting as chairman. The plan falls upon the ear of the masses as being a very desirable change in the form of college administration, for young men will be taught practical government; they will be led to comprehend more fully the sense of patriotism. The theory of this proceeding appears to be in harmony with the genius of the institutions of our country. The premises of this last proposition will bear investigation before they are accepted by an American people. In general, a college is a corporation whose management and control are vested in a body of trustees, with whom reside the legislative, judicial, and executive authority. This board employs a faculty, the president of whom is usually *ex officio* trustee. The authority which the members of the faculty, including the president, possess, is only that which the board has delegated to them as a faculty. The students enter the college under the general rights of implied contract with the corporation of the college; they are quite independent of the faculty, except as the contract defines their relations; they can appeal from decisions of the faculty to the board of trustees, and even to the courts. The case sums thus: The faculty is employed to discharge towards the students the obligations which the board of trustees, representing the college corporation, vests in them towards the students with whom the corporation has entered into an implicit contract. Now the employés of the board propose to invite the second parties to the contract to help administer the very affairs in which they (students) are beneficially interested; that is, the faculty propose to allow students to administer on affairs which exist between the corporation and the students themselves. Much of this administration is judicial in its nature; hence the students would become judges in affairs in which they are immediately interested under implicit contract. This position subverts the theories of American legislation and jurisprudence. Besides, waiving the above point, what will be gained by the innovation? Will the students as a body gain more acquaintance with the affairs of the nation, of state, or of a municipality by sending a few representatives into the councils of the faculty to assist in administering upon matters in which they are clothed with no authority whatever? for the board of trustees cannot transmit powers of original jurisdiction to committees and agents. The students who should accept the responsibility of pronouncing the judicial acts which disciplinary matters necessitate would assume a risk of being censured by the other students and by the public; they would be utterly powerless to withstand the adverse opinions, because they are endowed with no adequate authority to enforce their decisions. The innovation appears calculated to establish an artificial relationship between a few of the students and the faculty, and between a few students and the great body of them. If the experiment should succeed and the practice become permanent, it does not appear that any additions to educational principles are to result from it. Besides, would the practice, if inaugurated, be highly complimentary to the conservative dignity which Amherst enjoys so fully among the colleges of the United States? Is there not a color of sensationalism about the proposed scheme which hardly becomes this renowned institution?

SCHOOL-CHILDREN AS MESSENGERS.

In the city of New York, a teacher in the public schools recently allowed a child to seek the home of an absent pupil in order to learn the cause of the detention. The child, a little girl, entered the home of the absent schoolmate who was prostrated by diphtheria. The little girl returned to school and reported the nature of the sickness to her teacher. A few days subsequently the little girl became suddenly ill in the class room and was not permitted by the teacher to go home until the close of school hours. She was prostrated with a very severe form of diphtheria. These circumstances are explained by the superintendent of the public schools of the city, who says that "teachers are absolutely forbidden by the rules of the department to send a pupil out of school between nine and three o'clock. After school they have no more right to send a child on an errand than at any other time. In this case the little girl may have volunteered to go. Every child in a class is interested in keeping up the percentage of the class. If a child is absent, all in the class desire to know why their schoolmate is absent, because it lowers the class percentage, and any one of them is glad of an opportunity to stop at the house on the way home."

The question instantly arises, why should any system stimulate children by such motives? Schools are institutions for transacting business; children are elements of the society in which they move; the influences which pervade the school-room are artificial unless they are those which prompt society at large. Children should be stimulated only by those incentives which experience approves for adults. Why should teachers teach to children an arithmetic which would be useless in the counting-house? It is a matter of the gravest moment that the influences and motives which teachers introduce into the school-room should be inspected by the public. Instead of sending pupils as messengers, it would seem to be a better way to place in the hands of properly constituted officers the matter of calling at homes to inquire for absent pupils. In London, pupils may be sent, under limitations, but they are allowed tuition rates for the time spent in doing such errands.

TRUTHFULNESS IN CHILDREN.

A LADY of extensive experience in teaching asked this question: "Do children naturally tell lies?" A state superintendent of public instruction closed an exhortation to a body of public-school teachers with the sentiment that their highest study is to be true to themselves. These two incidents introduce the following examination.

It is usually held that intention determines the character of an act done by a responsible human being. Among the native faculties of mind is that of self-love. During all the years of conscious existence, human life vibrates in its actions between the self and the neighbor. The child comes first by instinct and intuition to the rescue of itself; then its wants dawn upon its consciousness; subsequently the consciousness of self-existence and of wants becomes strong and clear; later, the teachings of society direct the attention of the child to its duties towards its fellows. The forces of child nature are now fully enlisted in battle array in the mind of the child. The struggle arises between serving itself and serving others at the expense of self; for herein lie benevolence, civilization, and religion. In the mass of children, the strength of self-love is greater than that of self-sacrifice, or benevolence, which is self-sacrifice in its higher degrees. Place the child who is in this stage of moral growth under temptations which present strong appeals to serve self, and what will naturally result? The term which is commonly applied to the actions of the child under temptation, when it decides in favor of its own interests exclusively and against the moral standards of society, is that it lies or deceives. Instead of telling a lie, however, the child has acted its self-love spontaneously and has been only true to itself; it has not told a lie, when adjudged from its own standpoint. Society has established standards of conduct which the child does not fully understand, or which it forsakes in order to be true to its own conceived interests when under great trials. The words and actions of the child may be lies, when judged by the standards of morals of society. Hence the child must be taught those standards which society has established as true or false between man and man, and to which it must conform its own conduct. The infantile conception of truthfulness is never passed in practice by multitudes of adult people, who are therefore liars, because they know the standards by which their actions should be directed. Besides, this stage of self-love is much stronger when exercised about some things than when active about other matters. In school affairs, pupils of average attainments too seldom rise above the notion that to plagiarize in essay writing or to do acts which are undetected by the teacher involves no elements of high responsibility to them. Some entire nations are like children who make the creations of their imagination the standards which they follow. Such nations can be trusted but little by the nations that conform in conduct to other and higher notions in relation to falsehood and truth. These fundamental truths relating to childhood reveal the scope of the educator's work.

The matter of punishments is connected with this subject. Suppose that a child has no clear idea of the standard which is set before him by the teacher, what is the duty of the teacher towards the child? Not to punish it for disobedience, but to teach it the significance of right and wrong by direct instruction. It is shocking to contemplate severity with children who are not conscious of wrong; such harshness is revolting. Children do not lie when they are true to their own interests, as conceived from their own infantile standards of conduct; they do lie, under these circumstances, when judged by the high moral standards which religion and enlightened morality have set up. When teachers, in their practice, regard their own interests as paramount to the higher and profounder interests of society, it becomes the duty of society to protect itself against the dangers which lurk in the false motives that prompt the policy of its educational servants. Legal history shows that truthfulness, as a mark of progress in morals, has been one of the very latest products of civilization. The teacher who instructs his pupils that the highest purpose in life is to be true to themselves is one whose conception of the province of morals belongs to the infantile periods of the history of the race.

EDUCATION AND CIVIL-SERVICE REFORM.

Civil service is discussed by President Arthur in his message to Congress. His views are shown in the following excerpts from the message:—

> "No man should be the incumbent of an office, the duties of which he is for any cause unfit to perform; who is lacking in the ability, fidelity, or integrity which a proper administration of such office demands. . . . It seems to me that the tests that should be applied to the management of the public service may properly conform in the main to such as regulate the condition of successful private business. Original appointments should be based upon ascertained fitness. The tenure of office should be stable. Positions of responsibility should, so far as practicable, be filled by the promotion of worthy and efficient officers. . . . The measure which, with slight variations in its details, has lately been urged upon the attention of Congress and the Executive, has as its principal feature the scheme of

competitive examination. Save for certain exceptions, which need not here be specified, this plan would give admission to the service only in its lowest grade, and would accordingly demand that all vacancies in higher positions should be filled by promotion alone. In these particulars it is in conformity with the existing civil-service system of Great Britain; and indeed, the success which has attended that system in the country of its birth is the strongest argument which has been urged for its adoption here. The fact should not, however, be overlooked, that there are certain features of the English system which have not generally been received with favor in this country among the foremost advocates of civil-service reform. Among them are: *First.* A tenure of office which is substantially a life tenure. *Second.* A limitation of the maximum age at which an applicant can enter the service, whereby all men in middle life or older are with some exceptions rigidly excluded. *Third.* A retaining allowance upon going out of office. . . . The avowed purpose of that system is to induce the educated young men of the country to devote their lives to public employment by an assurance that, having entered upon it, they need never leave it; that after voluntary retirement they shall be the recipients of an annual pension. That this system, as an entirety, has proved very successful in Great Britain, seems to be generally conceded even by those who once opposed its adoption. To a statute which should incorporate all its essential features, I should feel bound to give my approval; but whether it would be for the best interest of the public to fix on an expedient for immediate and extensive application which embraces certain features of the English system, but excludes or ignores others of equal importance, may be seriously doubted even by those who are impressed, as I am myself, with the grave importance of correcting the evils which are inherent in the present methods of appointment. If, for example, the English rule, which shuts out persons above the age of twenty-five years from a large number of public employments, is not to be made an essential part of our system, it is questionable whether the attainment of the highest number of marks at a competitive examination should be the criterion by which all applications for appointment should be put to test; and under similar conditions it may also be questioned whether admission to the service should be strictly limited to its lowest ranks. There are very many characteristics which go to make a model civil servant; prominent among them are probity, industry, good sense, good habits, good temper, patience, order, courtesy, tact, self-reliance, manly deference to superior officers, and manly consideration for inferiors. The absence of these traits is not supplied by wide knowledge of books, or by promptitude in answering questions, or by any other quality likely to be brought to light by a competitive examination. To make success in such a contest, therefore, an indispensable condition of public employment would very likely result in the practical exclusion of the older applicants, even though they might possess qualifications far superior to their younger and more brilliant competitors. . . . But it ought to be seriously considered whether the application of the same educational standard to persons of mature years and to young men fresh from school and college would not be likely to exalt mere intellectual proficiency above other qualities of equal or greater importance. . . . To afford encouragement to faithful public servants, by exciting in their minds the hope of promotion, if they are found to merit it, is much to be desired; but would it be wise to adopt a rule so rigid as to permit no other mode of supplying the intermediate walks of the service? There are many persons who fill a subordinate position with great credit, but lack those qualities which are requisite for higher posts of duty; and besides, the modes of thought and action of one whose service in a governmental bureau has been long continued are often so cramped by routine procedure, as almost to disqualify him from instituting the changes required by the public interest. An infusion of new blood from time to time into the middle ranks of the service would be very beneficial in its results. . . . The submission of a portion of the nominations to a central board of examiners, selected solely for testing the qualifications of the applicants, may perhaps, without resort to the competitive test, put an end to the mischiefs which attend the present system of appointments; and it may be feasible to vest in such a board a wide discretion to ascertain the characteristics and attainments of the candidates in those particulars which I have already referred to as being no less important than mere intellectual attainment."

Although the treatment of civil service occupies considerable space in the message, it can hardly be said that the presentation of the subject is satisfying. Many statements are very general in their significance; some appear imbued with the spirit of advocacy that hesitates between two conflicting opinions, each seeming to be favored in turn, although evident preferences are more or less visible in the argument. This reflection is warranted, (1) by the nature of the objections which are raised against civil service; (2) by the question, "Would it be wise to adopt a rule so rigid as to permit no other mode of supplying the intermediate walks of the service?" and (3) by the final recommendation that Congress could establish a board of examiners to determine qualifications "without resort to the competitive test." Under such conditions, the board could be little more than a scapegoat for the politicians who commit sins in the matter of rewarding party service. The suggestion made in the message that civil service should be adopted by slow degrees is not calculated to inspire confidence in the mind of the public that measures of civil-service reform will be vigorously inaugurated.

The manner in which the message presents objections against limiting appointments by the decisions of educational tests, is the portion which is most interesting to educators. It is urged that the service demands something more than a "wide knowledge of books"; that it requires "probity, industry, good sense, good habits, good temper, patience, manly deference to superior officers, and manly consideration for inferiors." The message says that "It ought to be seriously considered whether the application of the same educational standard to persons of mature years and to young men fresh from college would not be likely to exalt mere intellectual proficiency above other qualifications of greater importance." No one will question the necessity for all the qualifications narrated in the message; but what is the meaning of a liberal education, except it be the preparation of the mind to adopt habits which are essential to transact business successfully? Education signifies the freedom, adaptability, and power of mind which the uneducated do not enjoy. Special qualifications are developed by experience. Shall it be said of a young man who has acquired a thorough education, that he has not greater capacities for adapting himself to forms of business than he would possess were he uneducated? Surely the chief magistrate of the United States will hardly consent to affirm this. Educational discipline constitutes the very elements of habit; it tends to broadness of view. If the servant can look forward to promotion, he will not be disqualified for the higher duties because he is familiar with the details of routine work; this experience will be an advantage, provided the man is educated. The history of the army and navy attests the truth of this fact.

MISCELLANEOUS NOTES.

EDUCATORS mourn the death of Dr. J. G. Holland, Dr. John W. Mears, and Dr. W. D. Henkle. Dr. Holland spent some years in educational work; he was an educator of the people all his life; his writings form a monument to his memory that all the world will honor. Dr. Mears was professor of metaphysics in Hamilton College. He was the fearless friend of liberty and right; he was the chief power that compelled the Oneida Community to adopt legal marriage into their form of social life; he was active in all phases of educational progress; he was honored and loved by all who knew him. Dr. Henkle was a man of wide attainments; his administration of public schools in Salem, Ohio, was eminently progressive; he was a true man in the profession, serving it at all times with devotion and marked efficiency; his talents were versatile; his companionship was most genial; his sympathies were warm, especially towards youthful teachers.

ALL friends of true educational liberty will rejoice to learn that the courts have sustained the Faculty of Purdue University in adopting a rule which excludes from the institution members of Greek-letter societies. This is a test case in college administration. It is time that colleges in America should be regarded as corporations having rights of implicit contract which students are bound to respect.

THE journey across the Atlantic is so serious a matter to most tourists that any plans which propose to render the voyage more safe against storms and collisions are hailed with pleasure. Capt. Horatio McKay of the Cunard line has submitted in the *Century* for November a plan to accomplish these improvements. He recommends that governmental authority shall establish between Liverpool and New York, eastward and westward tracks which shall be followed by all steamships. These tracks are termed "lane routes," the westward of which should cross the meridian of 50° west at 42° 40′ north, and the eastward the same meridian at 40° 40′ north. These two lanes would be one hundred and twenty nautical miles apart, which would preclude the possibility of collisions. While the time required for crossing would be slightly increased, the safety assured by the lanes would amply compensate for the additional time. Educators are deeply interested in the safety and comfort of ocean travel; for reading and conversation cannot give an adequate conception of a country that has grown old and has become stratified in its social and governmental institutions. Travel in our own country is profitable; but travel in foreign lands enlarges the views of the true province of education as nothing else can do.

WRITING compositions is a common practice in schools. What subjects shall be set to pupils? is a question of importance. Teachers should aim to induce in their pupils habits of mind that are as distinct, rigid, and certain in regard to writing as are those which relate to mathematics or any other subject. Writing on miscellaneous subjects is harmful, unless the pupils are prepared for this stage of composition. Habits of mind are confirmed by proper exercises with facts, provided the habits are to be serviceable in the great responsibilities of life. This principle establishes the character of the composition which should be required of pupils; viz., they should deal with facts, and facts only, until facility has been acquired to do this writing. Require pupils to treat facts in their compositions with the same rigorous disregard of color as they do mathematics in a recitation. Narration and description are the two fields which should furnish the elementary discipline in writing. After pupils can state a fact correctly and tersely, they may be allowed to introduce coloring gradually into their compositions. Pupils must be taught that correct sketching precedes the use of paints, that the crayon goes before the brush.

THE trial of Guiteau at Washington for the murder of President Garfield was characterized by many features of the farce ; yet one thing was revealed which must impress all people of the country who trace effects to causes in psychical problems. Here was a man who was cunning, clever in many things, fanatical in others ; a profligate adventurer who was responsible for his actions, without any doubt. He wanted a position in the public service, and was disappointed because he was unsuccessful. While in this state of mind, his eye alighted upon paragraphs in some newspapers which heaped personal abuse upon the President ; hints were thrown out to the effect that the removal of the President would avert dire calamities, which threatened the whole country should the Republican party be sundered by the dissensions which then were rife. These revolutionary sentences struck Guiteau as an inspiration from the Almighty to remove the President. The world mourns the sequel. It is murder to stab a man with a dagger ; is it less a crime against society to publish sentiments and expressions which inspire fanatical minds to commit murder with a pistol ?

IN these days of educational empiricism and haste to secure to pupils those intellectual attainments which can be acquired only by diligence continued during a series of years, it is profitable to pause to look into the studies of those men who took the honors of the world. By doing this, it will be found that facility comes only after the severest application. The habits of the celebrated Balzac are delineated in the "Argosy" : —

"It is Honoré de Balzac we are going to look in upon. Each of his novels, at least after he became great, was thoroughly thought out in all its ramifications before he put pen to paper. He would take a long journey to obtain the minutest point of a description, even of a street of a country town. As Dickens in London, so was he in Paris, ever in the streets, note-book in hand, ever piercing and penetrating into every class of society. When all the materials of his proposed work were amassed, he would retire from the outward world. Every visitor was refused admittance; letters were left unopened; even the daylight was shut out, and candles supplied its place. His ordinary costume was exchanged for a loose white monkish gown, Turkish trousers, and slippers. He rose at two A. M., and wrote from that time until six; then he took a bath, in which he remained meditating frequently for an hour; at eight he took coffee, rested for another hour, and then resumed his writing until noon, after which there was another hour's interval for *déjeuner;* from one to six he wrote again, dined, received his publisher, and went to bed at eight. This kind of life sometimes endured for two months. When it came to an end, he had accomplished only the first rough draught of the work. Sometimes it was almost entirely rewritten; chapters were transposed, expanded, altered. Then came the proofs, the margins of which were entirely covered with corrections; the revises, first, second, and sometimes third and fourth, were returned in a condition almost as illegible. He was the terror of printers; few could read his copy, and those who could made an express stipulation with their employer to work on it only one hour at a time. "I toil sixteen hours out of the twenty-four," he said, "over the elaboration of my unfortunate style, and I am never satisfied with it when it is done."

THE elections of last November were conspicuous for the reluctance of office-holders to contribute funds for the political campaigns. All thinking men of the nation realize the danger to national life which lurks in the form of political assessments upon government employés. But it was not until the assassination of the lamented Garfield that the enormity of the danger came into full view. The elections last fall witnessed a wholesome reaction in the mind of the public in regard to the fruitful source of corruption which resides in the theory and practice of political assessments and obligations. The practice of assessments has developed whole broods of partisans whose chief objects are "spoils"; it has trained up in our midst a race of semi serfs or slaves to the man who can command the emoluments of office; wholesome, independent manhood has been ostracized; principles are lost sight of in order to gain the favor of party men. Yet some men have dared to be brave in the face of the high tide of the system of spoils, although punishments have been showered upon them. The few fearless men have been re-enforced; "bossism" has fallen in those States where it has been most oppressive and revengeful. What are the duties of educators in relation to national evils like that just mentioned? can teachers instruct boys to abstain from such ways when they become men? or shall teachers teach morals in general and nothing in particular? These are questions of great consequence to the future of our nation; for it must give the thoughtful historian occasion to reflect upon the phases of our governmental theories when he witnesses many of the practices that have sprung up under our form of organization. It is an undoubted fact that the practices and theories which have gained so great a hold upon our national life have done more to pollute and demoralize the public conscience than all other things in our country combined. Why should teachers try to teach morality to boys so long as our elections breed destruction to honor and truthfulness among men, unless the school-room attack the evils that exist in the body politic?

NOTES.

ARCHÆOLOGY.

THE recently organized Archæological Institute of America held a meeting in Boston, Nov. 15, to listen to the report of the Executive Committee upon the work thus far accomplished by the expeditions sent out by the Institute, — one to Assos in Asia Minor, and the other to Mexico. It appears from the report that the expedition to Assos is under the management of a competent man. It will be remembered by classical students that Assos is an interesting Greek city. The remains of walls, theatres, and temples are very considerable. Outside of the walls is a cemetery, with many tombs and sarcophagi, some of which are ten or twelve feet long. Leake says of Assos, "The whole gives perhaps the most perfect idea of a Greek city that anywhere exists." The expedition commenced work at once; laid bare the stylobate of an ancient temple, and what is of special interest to archæologists, discovered the delicate incised lines traced upon the pavement by the ancient architect to mark the position of the walls of the cella. Many capitals in excellent preservation have been found, as well as many fragments of the famous sculptured epistyle of the temple. Seventeen of these fragments were taken by the French in 1838, and now form one of the chief treasures of the Louvre. Drawings of the sculptures are on exhibition in the Boston Museum. A number of important inscriptions were found, one of special importance relating to the lending of some judges by Assos to a neighboring city to decide a lawsuit, at about B. C. 300; this inscription is of special interest to students of Demosthenes, as bearing on some doubtful questions suggested by the "Oration on the Crown."

While it is well known among scholars that archæologists are making great progress, and that their work is shedding light on every department of antiquity, the equally valuable researches of the prehistoric archæologists are often overlooked. And yet this work is of special instructiveness and value, for what is more needed to enable us to understand the early institutions of society than for some one to bridge over the chasm between savage and civilized society, — *i. e.*, to approach early institutions from the point of view, not of what they grew into but of what they grew out of, not of historical records but of prehistoric antiquity? The science of prehistoric archæology, although comparatively a new one, has already taken its place among the circle of sciences; it has lived down the successive stages of scornful denial, of doubt, of unwilling assent, and has finally conquered a substantial recognition for itself. One of the ablest workers in the field of prehistoric archæology is Prof. Henry W. Haynes, whose discoveries in the valley of the Nile were noticed in EDUCATION, No. IV., p. 405. His recent lecture before the Long Island Historical Society on "Fossil Man" was of great interest, and a substantial contribution to the subject which he has enjoyed such rare and exceptional opportunities to prosecute. Prof. Haynes gave a brief history of the science of prehistoric archæology, — the literature it has developed, until it numbers among its votaries many conscientious and painstaking students, who are devoting themselves exclusively to this new and rich field. The lecturer then briefly sketched some of the objections which the science has met with. In regard to the antiquity of man, many new facts were adduced, all tending to show that the ancients themselves were not so far mistaken in holding to the great antiquity of man, and giving special significance to Horace's words: "When men first crept forth from the newly formed earth, a dumb and filthy herd," etc. In the mediæval ages, however, under Christian influence, and the enforcement of the supposed Biblical chronology, this view of man's antiquity was abandoned.

But when men discovered in caverns, in France and in various other localities, human bones with the remains of extinct species of animals; and particularly when Boucher de Perthes, the pioneer of the science, found in 1841, in the valley of the Somme in France, a flint rudely fashioned into a cutting instrument embedded in a gravel bed containing fossil mammalian remains, and his antiquarian knowledge and experience recognized at once how different these rude and peculiar weapons were from those fashioned from the smooth stones found on the surface of the soil; and again when other and similar discoveries were made in widely separated localities, — the attention of all scientific men was called to this new branch of science, prehistoric archæology, and since then the science has advanced steadily to its present position. By "fossil man" is meant "man as the contemporary of certain species of animals, now either totally or locally extinct, and about whose existence history and even tradition are silent." The period in which these remains are found is called by the French the "quaternary period"; by Sir Charles Lyell the "pleistocene period," which is a more correct term, as the word "quaternary" implies a marked separation from the preceding "tertiary" period, whereas in fact no such marked separation exists. On account of the extensive deposits of rolled and water-worn pebbles, gravel, and sands, this period is often called the "drift" period. From the fact that these remains are found mixed with the bones of animals which now belong to the Arctic region, — from the fact, for instance, that the reindeer lived in as low latitude as the South of France, — a lower temperature than at present prevails would seem to be indicated; but on the other hand, mingled with these remains are found those of the elephant, of the hippopotamus, and of the hyena, the inhabitants of a warmer climate. These phenomena have suggested many perplexing questions as to the climatic condition of that remote period. Besides the usual astronomical causes assigned for the existence of the glacial period, Dawkins thinks that a large influence should be given to different geographical conditions in the distribution of land and water, or to a change in the direction of the Gulf Stream. The deposits in which these remains are found lie in gravel beds on the sides of valleys along the prehistoric water-courses, sometimes two hundred feet above the present beds of the streams. The remains of man that have been discovered "show that man even at this early period possessed a considerable cranial development, and was endowed with a brain capacity fully equal to the average at present"; and also that there were two different types of man based upon the shape and measurements of the skull, — dolicho-cephalic, or skulls of long shape, and brachycephalic, or round shape. The human remains of the quaternary period are, however, rare, showing that the population was small. There is little evidence to show the existence of man in the tertiary period. When the plateau of Central Asia, the original home of the Indo-European race, is searched, it is expected that valuable discoveries will be made. The first question to arise is, How long has man existed upon the earth? To this, science is as yet unable to furnish a direct answer. It is clear, however, that man was in existence prior to the great floods that closed the glacial epoch. Among the valuable contributions to a solution of this problem of the antiquity of man are the systematic explorations made in South Devonshire, in "Kent's Hole," in Brixham Cave, and particularly in the valley of the Somme, — the classical ground of archæological researches, where the graves of a Gallo-Roman cemetery indicate that it has been undisturbed for 1,500 years. Some of the implements discovered lie two hundred feet above the river beds. At St. Acheul, stone axes were dug out of a gravel pit removed from the river and one hundred feet above its level, the deposits of gravel indicating the lapse of time that has taken place since these old implements were dropped there. In the valley of the Somme, similar implements are found in the bottom of peat beds thirty feet thick. On the top of Melford Hill, near Salisbury, England, is a gravel bed in which these implements have been found, and the very position of the gravel bed indicates its great age. The hill has a valley one hundred feet deep on either side; had the valley existed when the gravel was deposited by the water, it would not have been deposited on the top of the hill. The geologic evidence is that the top of that hill was once the bed of a river flowing through a valley whose sides have disappeared, and new valleys one hundred feet deep have been made. No argument is needed to show how great is the lapse of time since this change occurred. Messrs. Ferry and Arcelon have attempted to calculate the duration of the successive prehistoric ages from the depths of the deposits of the river Saone, which is gradually raising the level of the plain through which it flows. Taking the position of the Roman remains as the basis of his calculation, Ferry finds that the accumulations since that period amount to eighteen or twenty inches. Relics of the age of iron are met with at the depth of about a yard below the Roman; those of the age of bronze occur about four feet below these; and the remains of the age of stone are found about four and one half feet lower still. This he estimates would give for the age of bronze an antiquity of 3,000 years; for the age of polished stone, of from 4,000 to 5,000; while the palæolithic age would be thrust back some 10,000 years. (The old stone age is called "palæolithic," while the later stone age is named "neolithic.") Arcelon's computations differ somewhat from these. To the age of bronze he assigns an antiquity of 4,000 years, and to the palæolithic age 8,000 years. These calculations, it may be mentioned, do not vary materially from those of M. Martot, who has carefully studied the deposits of detritus made by the Tinière, which flows into Lake Geneva. These calculations, in their very nature unsatisfactory, — assigning as they do only minimum periods for the successive epochs, — are, however, the only data at present that the prehistoric archæologist has to work with. According to these, then, from 7,000 to 10,000 years at least must have elapsed since the end of the palæolithic period.

How far back the beginning must be placed, they do not undertake to calculate. Then again, the complete extinction of the large mammalia like the mammoth, the woolly rhinoceros, the cave bear, is another indication of the immense lapse of time since man struggled with these huge monsters for existence. But it may be objected that the quaternary gravels are due to some sudden cataclysm, and were deposited in a comparatively brief period of time. That this was impossible, the regularity of the layers, and the fact that the materials of one river system are never found mingled with those of another, would be a sufficient answer. For example, the quaternary gravel beds of the valley of the Somme are entirely composed of débris from the chalk and tertiary strata occupying that area. But within a very few miles of the head waters of the Somme, at right angles with it, and at one point only six miles distant and separated by a ridge only eighty feet in height, lies the valley of the Oise, which contains remains of different and older strata, none of which have ever found their way into the valley of the Somme. From these and similar considerations, prehistoric archæologists are united in the opinion that implements of the St. Acheul type are the earliest relics of man's existence hitherto discovered.

There has, however, until recently been missing one important link in the chain of evidence of those who believe in the great antiquity of man. How is it, says the disbeliever, that no such evidence has been discovered in Egypt, the oldest country of which we have direct historical knowledge? It is true that Lenormant, Arcelon, Lubbock, and others have made journeys up and down the Nile, and published articles on the subject; but still nothing has been found which could satisfy the prehistoric student that evidences of the existence of the palæolithic age had been found. Prof. Haynes, during a residence for some time at Luxor, the site of the ancient Thebes, with its "hundred gates" of which Homer sings, succeeded in making a real contribution to this subject, in finding several implements of the true type of St. Acheul, besides innumerable objects such as knives, scrapers, etc., which are commonly met with in other countries where the existence of the Age of Stone is regarded as established.

PHILOLOGY.

Fitzedward Hall has an interesting article in the "American Journal of Philology, No. 7," on the origin of "had rather" and analogous locutions. Most of our grammars have adopted the explanation of *had rather*, *had as lief*, *had better*, etc., given in a note in Webster's Dictionary, as originally mere blundering interpretations of the abbreviation of *would*, as in "I'd rather etc. Hall shows that *had rather* is a good old English idiom, which deserves better treatment than it has hitherto received. I remember that several years ago some critics spoke of this line from George Arnold's poems, "I fancy you *had* rather have blame instead," as "a piece of bad grammar." The expression *had rather* appeared in our language as far back, at least, as the eleventh century. *Should have*, etc., long had a sense which for the most part now seems strange, as "And thys daye rennyth a tale, that the Duke of Bretayne *sholde be* ded" (Sir John Paston, 1472, in the "Paston Letters," Vol. III. p. 60). In the expression *had rather*, *rather* is not an adverb, but an adjective, synonymous with *preferent*. Mr. Hall adduces examples of the use of *had rather* extending over a period of two hundred and fifty years. *Rathe*, as a literary word, — "The *rathe* primrose" of Milton, — as well as *rather* as an adjective, were falling into desuetude in Milton's time. "Our *rathers*" was used by Palsgrave (1530) for our *forefathers*; so *rathe*, with our culinary *rare*, — a contraction of *rather*, — has borne the sense of underdone. Littleton, in his Latin Dictionary (1684), renders *ovum sorbile* by *rathe eggand*, "a poached or *rath*-roasted egg." *Rere* is a word of much interest which Mr. Hall entirely passes over. Mr. Hall thinks that *had rather*, in "we *had rather go* than stay," was originally simply a substitute for *had* liefer: as "For ye sayd ye *had rather lose* the towne" (1481); "I trow you *had rather have* it in my owne hand" (1499); "I *had rather have spent* a crowne" (Roger Ascham, 1545). It is worth noting that *I would rather* does not occur in our English Bible, though *I will rather* does. Those interested in tracing the history of such expressions as *had rather*, *had lever*, *had liefer*, *had lief*, *had as lief*, *had better*, *had as good*, *had likely*, *had need*, etc., will find abundant material in this article by Mr. Hall.

In the same number, Prof. Whitney has an interesting article on "What is Articulation?" Prof. Heyse, of Berlin, defines "articulate utterance" as follows: "Articulate-utterance is such as is naturally produced by human organs; inarticulate, such as is naturally produced by other than human organs." Since we are able to reproduce with our organs many of the sounds of the lower animals, there was evidently no great satisfaction in this definition. Sievers, after first describing the condition of the organs in breathing, says, "So long as the organs of speech continue in such a position, the production of a speech-sound is impossible; in order to this, at least a part of them must be moved out of that position and put as hindrance in the way of the current of breath, — in other words, an *articulation* must take place." The word itself is derived from the Greek *ἔναρθρος*, which means simply *jointed*, and is used in a physical sense, rendered into Latin by *articulus*. "Now, the word 'jointed' is precisely, and in the highest sense," says Prof. Whitney, "descriptive of human speech-utterances as distinguished from our other utterances, and from the sounds produced by the organs of the lower animals. . . . These are the syllables: 'articulate' virtually equals 'syllabic.'" Prof. Whitney has shown in his "Oriental and Linguistic Studies," II. 294, that the syllabic effect is given by the alternation of closer or consonantal with opener or vowel elements, — the interposition of the former between the latter; the continuous current of uttered tone is broken into joints to the ear, just as a uniform flexible tube would be to the eye by tying threads more or less closely about it from point to point. Thus, whereas inarticulate utterance is holophrastic, or not separately significant in its parts, and limited in duration, articulate utterance is indefinitely continuable, because each joint in its series has its own character and value, and their multiplication is the multiplication of meaning. This understanding of "articulate" is not only deducible from the etymological sense of the term, but is clearly suggested by the oft-quoted passage from Aristotle ("Hist. Anim.," IV. 9). "Articulation, then," continues Prof. Whitney, "consists not in the mode of production of individual sounds, but in the mode of their combination for the purposes of speech. Hence — and this is a most important part of the significance of the term — it does not depend on any peculiarity of structure in the human organs of speech, but on the manner of their use as developed by education and practice; it is not physical, but historical. We have every reason to believe that language began with monosyllabic utterances: perhaps first pure vowels, then open syllables, then (more questionably) close syllables; one such utterance was the equivalent in meaning of a whole modern sentence, — a simple voice-gesture, as it were, directly intelligible under the circumstances of its production."

SCIENCE.

THE advance in the artistic illustration of our school text-books has been to a certain degree commensurate with the progress in American wood engraving, which is now conceded, even by foreigners, to have reached exceptional excellence; but there is one department in which this advance is not so marked and noticeable, that is, in the maps of the geographies. It may, therefore, repay our geographers to study the methods of expression used in a map constructed by Mr. John E. Weyss, of the United States Engineer Bureau, which has recently won the highest honors at the Geographical Congress of Venice. This model map, a rare combination of science and art, is admirably described in the December number of the "Popular Science Monthly," from which we make the following extracts: The methods of construction combine the rapid reconnoissance, the mountain sketch, the barometrical height upon a precise geodetic basis, and incorporating all reliable information obtainable from other sources, especially the land surveys;

and so faithfully are the features of the country thus portrayed that the map of Lake Tahoe, the subject of this sketch, is sufficient to guide the engineer in his projects, the geologist in his studies, the tourist on his travels, the soldier on his march, and the emigrant in search of a home. So much for its usefulness, its first and principal mission.

As a work of art, it possesses still greater interest to the ordinary observer. Lake Tahoe, situated high up in the heart of the Sierras, is given the place of honor in the centre, the mountain range sloping to great depths in the Carson Valley in the east, and towards the Pacific Coast on the west. Freel's Peak, Pyramid Peak, and Mount Rose, each upwards of ten thousand feet high; the easy grades of the forest-clad slopes about the lake; the rocky shore, the sandy beach; the angular course of the mountain torrent as it dashes between cañon walls, its winding bed through the alluvial soil of the valley; the barren edge of the desert; the great round hills of the Comstock Lode; the agricultural district with its checker-work of farms; the quartz mills, log slide, flume, and railroad, — all are given true to nature.

Here, too, are shown many places of interest to the student of Western history and literature: towards the north limit of the map lies the historic Donner Lake, where in early days a band of emigrants starved in the snow; there is the Devil's Basin, impassable and almost unapproachable, a great area of rock rent with chasms and dotted with myriads of lakes. The Pacific Railroad winds between the high cañon walls of the Truckee River, and then follows its circuitous course through miles of snow-shed and tunnel across the Sierras.

Westward from the lake runs the old Placerville road, of bandit fame, and down the eastern side of the range winds in and out, with many an escalop, the stage road of the famous Hank Monk; while the excavated grounds of the Virginia City mines, and the Geiger Grade, — made famous by Bret Harte, — show in the distance. In fact, if a person were called upon to construct an ideal map, he could hardly derive from his imagination a chart more comprehensive than this. That is the best map for school instruction as well as for professional use which in its entire proportions presents the most exact picture of the country. There is room in every map for many a felicitous touch and artistic bit of shading, not provided for in the present schools of conventional topographical drawing; but the merely mechanical draughtsmen construct maps whose geographical features are stiff, unnatural, and almost mechanical in their geometrical regularity, appealing neither to the eye nor the mind of the students.

FOURCROY long ago observed that in pure oxygen, at a temperature of 15° C. and under atmospheric pressure, phosphorus was not luminous in the dark.

Chappuis finds that the introduction of a bubble of ozone produces the phosphorescence, though but momentarily, the ozone being destroyed. It is not the vaporization of the phosphorus, but the combustion of its vapor, that determines the phosphorescence; the entire space occupied by the oxygen at first appearing luminous, the solid phosphorus becoming so only after all the vapor has been burned by the ozone.

A striking experiment was made by inverting two cylinders. one containing air and the other pure oxygen, over two dishes containing potassium iodide and starch solution. A fragment of phosphorus was plunged into each gas in contact with the liquid. In the first, the phosphorus became luminous, and the solution turned to a blue color. In the second, neither phenomenon appeared. Whenever the phosphorescence was visible, ozone was present; and whenever ozone was absent, there was no luminosity.

Bodies which destroy ozone, or are destroyed by it, also destroy this luminosity. Oil of turpentine does so effectually. Ozone, on the contrary, directly influences its production. Chappuis considers that the luminosity of phosphorus in oxygen is one of the most delicate reactions for the detection of the presence of ozone. — *Bulletin de la Société Chimique de Paris.*

Dr. A. B. **Meyer**, the distinguished curator of the Dresden Zoölogical Museum, has undertaken, with the assistance of the Department of the Art and Sciences, to issue a serial publication containing fac-similes, photographic or otherwise, of the most important objects in the extensive collections intrusted to his charge. The present number of the "Bilder-Schriften des Ostindischen Archipels und der Südsee" contains six folio photographic plates of the curious and hitherto undeciphered hieroglyphics or pictorial writings from North Celebes, the Pelew Islands, and the Easter Islands, accompanied by eight folio pages of letter press, full of matter of extreme interest to anthropologists.

J. L. **Phipson** has been able to separate a new element from the pigment zinc-white, which he calls actinium. The oxide is soluble in ammonia and ammoniacal salts, and is slightly soluble in caustic soda. Its color is uninfluenced by exposure to light. The sulphide is a canary-yellow substance, soluble in acetic acid, and turns dark by exposure to the air.

M. **de Chardonnet** is investigating the absorption of ultra-violet rays by certain media. The author finds that the liquids circulating in plants or impregnating roots and fruits have all an avidity for chemical rays. Fluorescence does not seem to be directly related to intensity of actinic absorption; thus decoction of radish absorbs less than decoction of potatoes, yet the former is without the property, while the latter is not. White wine is weakly fluorescent; red wine does not fluoresce. Of the few animal liquids examined, blood is found a powerful absorbent; but the aqueous humor of a calf's eye, and the albumen of eggs, have no action on chemical rays. Distilled water, alcohol, ether, collodion, and a solution of cane sugar are also inactive. Gelatine intercepts all the chemical rays, and is sensibly fluorescent.

M. **Gley**, a French physiologist, respecting the effect of attention and intellectual work upon cerebral circulation, confirms the results of M. Mosso, and adds some new observations. He finds that the rhythm of the heart suffers an acceleration, which is increased in a direct proportion with the intensity of the attention.

Thus the pulse was quicker when he studied geometry than when he studied philosophy, with which he was more at home. The carotid artery is also dilated during cerebral work, and the carotidian pulse becomes dicrotic, but the radial pulse becomes smaller and less ample. The phenomena of congestion observed in the brain persist for a certain time after cerebral activity.

IT is said of Mr. Ruskin's museum at Sheffield that " there is perhaps no room in the world which contains in so small a space so much unique artistic treasure as the small apartment comprising the 'Museum of St. George.' A clever thief could carry off the whole contents in a large carpet-bag, — precious stones that could not be replaced, rare prints, and incomplete MSS."

MR. LARKIN J. MEADE's artillery group for the Lincoln monument at Springfield, Ill., has been successfully cast in bronze. It represents a disabled cannon, from which the gunner has been struck down by a fatal shot. A boy looks on horror-struck, while the captain mounts the gun and waves his sabre aloft in defiance to the foe.

LADY BURDETT-COUTTS is deeply interested in the philanthrophy of art ; in those pictures which take for their theme the hard, pathetic facts of poverty. She has commissioned Mr. Wilfrid Lawson, an artist who paints the poor at work with marked sincerity, with a series of studies in adult life among the toilers of London, which are to follow the group of pictures called the "Children of the Great City."

H. HELMHOLTZ provides, for an electro-dynamic balance, an ordinary balance, with two spirals of copper wire in place of the pans. Beneath these spirals are also two spirals of larger radius. The terminals of these spirals are so arranged that one of the movable spirals is attached and the other repelled. The conditions of sensibility are discussed, and the author concludes that the current which is equilibrated by one gramme can be measured to $\frac{1}{2000}$ of its value. — *Ann. der Physik und Chemie.*

MM. SCARPA and BALDO suggest the following modification of Ruhmkorff's coil : With an induced coil, arranged in two blocks placed on the poles of the magnetic nucleus and communicating with each other, so that their points of junction may be at equal distances from the nucleus, effects are obtained of much greater power than with the ordinary arrangement. — *Les Mondes.*

THE monotype is becoming popular in American studios as a new method of art expression. The process consists of making a drawing with printer's ink on a copper plate ; while the ink is wet a dampened paper is pressed upon it, and on being taken up it is found that the picture has been transferred to the paper.

Robt. C. Winthrop.

EDUCATION.

No. IV.—March, 1882.

THE ASPECTS OF THE TEACHING PROFESSION.

BY W. H. PAYNE, A. M.,
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An English author speaks of the teacher as "on the verge of being admitted across the uncertain line which separates an 'occupation' from a 'profession.'" * This sentence expresses, in a summary manner, but with great accuracy, the present condition of the teaching class. We aspire to a professional recognition, yet we are half conscious that we are not entitled to such a mark of distinction. Our notions of the marks that characterize the three recognized professions are not very clear; and we hesitate to assume rights that are at least questionable. Of the advantages that would come to the teaching-class from this professional recognition, all real teachers must be more or less conscious. The important thing, just now, is that we all have clearly-defined notions of what really constitutes a profession, and of what we yet lack of these essentials. It is certain that the world outside will hasten to recognize our professional claims when we ourselves have fully deserved them. Let it be our purpose, then, to discover the marks that distinguish a "profession" from a "calling," that we may thus put ourselves in a condition to estimate our resources and our needs. Let us know both our limitations and our possibilities, to the end that we may know what to do and what to leave unattempted.

Perhaps we may attain the best general notion of what really constitutes a profession if we liken it to an inclosed and fortified camp, into which none can gain admittance except on uniform, difficult, and explicitly stated terms. A profession is a body of men hedged about with rights, privileges, and prerogatives that are denied those who have not received formal admission within the prescribed bounds. This prescription is either *formal*, as when the law determines the conditions on which men may practice medicine or law; or is *conventional*, as when the lines are traced and defended by public opinion. In Illinois, for example, the quack loses his occupation by mere force of law, while in Michigan it is the weight of public opinion that makes his calling disreputable. In the first case, public opinion has been translated into law, and professional lines are defended by force; while in the second, intruders are warned away by frowns, and trespass upon professional rights thus becomes a misdemeanor. So, too, in cases of minor importance, the law does not prescribe who shall practice in the courts, but "pettifogger" embodies the public condemnation of this trifling with even a citizen's minor rights; while in all courts of higher jurisdiction a formal admission to the rights and prerogatives of the profession is vigorously exacted. In the ministry the law makes no prescriptions, but each sect has its own set forms for admission to the privileges of preaching; and the minister or the church that does not respect these forms is cut off from fellowship, and the offender becomes an outcast. Let it be understood that in all cases where professional prerogatives are defended by law, the law merely interprets, expresses, and enforces the decisions of public opinion. The three learned professions do not owe their origin to persistent self-assumption, nor are they outgrowths of a spirit of caste; but are the exponents of that reverence that is instinctively felt for superior wisdom, skill, and worth. That wisdom which reaches over into the confines of the world of spirits; that skill which can rescue the body from death, or save it from the torments of disease; that knowledge which can defend our rights to life and liberty when assailed; these qualities transcend ordinary ability, — can be acquired only by long and patient devotion to study; and so, by universal consent, they bestow on their possessors peculiar rights, privileges, and prerogatives.

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* Laurie (S. S.), *Primary Instruction*, p. vi.-vii. (L. 1874).

Let us stop at this point to examine the import of a word that to some is a rock of offence. I have spoken of professions as conferring privileges, and thus, by implication, I have asserted that professional bodies are privileged classes. I now wish to say, and without the thinnest shadow of concealment, that the professions *are* privileged classes. But the privileges so possessed and enjoyed have been earned, and hence are deserved. A man who, by industry and self-denial, has accumulated a surplus of this world's goods, may enjoy privileges to which his thriftless neighbor is not entitled. He may have an elegant house, rich furniture, pictures and books; he may repose on a bed of down, or ride in an easy carriage; he may extend his knowledge and gratify his tastes by travel in foreign countries; he may prolong his life by purchased leisure and relief from inordinate labor; all these things he may have because he has earned them, and he may have them, too, even though his neighbor has none of them. Yet all these are privileges, — things that one may have and enjoy, and not another. Or, a man, through the resources of native talent, supplemented by studious, preparatory training, may acquire extraordinary skill in the treatment of the human eye. Such skill finds a ready market, and success in a line of labor involving interests of such supreme importance brings with it a high rate of remuneration, and soon leads to the accumulation of a fortune. The occulist evidently leads a privileged life; but his enjoyment of those privileges involves no injustice, because they have been earned, and are therefore his to have, to possess, and to enjoy. Shall we accord the butcher a just ground for complaint when he compares the pittance he receives for dressing an ox for the market with the princely fee paid the occulist or the surgeon? Neither law nor public opinion interposes any objection to a man's taking up the trade of butcher; but it permits only the privileged few to treat the diseases of the human eye. In fact, the work of this world is done on the hypothesis that privileges are the just deserts of merit. Else what would give inspiration to the toiling hand and the toiling head? Why weary ourselves to attain excellence, if excellence is to have no reward?

The three recognized professions, — Law, Medicine, and Theology, — have this characteristic in common, that they offer to men of talent the hope of a *career*, — *i. e.*, the opportunity of rising to distinction, either through exalted position or through wealth. Place, power, and fortune are the motives that influence most men to the exercise of their highest and best powers; and the three professions named are so attractive to men of genius because they furnish these opportunities for preferment.

Now let us go back to inquire on what grounds it is that public opinion bars the entrance to the profession of medicine, but imposes no formal conditions on those who purpose to follow a trade, such as carpentry. The first reason is, that the practice of medicine involves human interests that are infinitely higher than those that are involved in the common practice of carpentry; and that the consequences of ignorance or of malpractice are proportionately more serious in the first case than in the second. Our dearest possessions are life and health, and ignorantly to jeopardize either is a crime. The discomfort or pecuniary loss involved in bad carpentry is a matter of comparatively little importance. But if the art of carpentry were generally to involve human life, then public opinion would demand the guarantees that are now required of the physician.

Again, in mere occupations or trades, it is easy to judge of the quality of the service rendered, so that no special precautions are enforced to insure inferred confidence. If, in a strange city, we need the aid of a tailor or of a shoemaker, we do not hesitate to address ourselves to any one who is in the line of service that we require; we infer the workman's competence from the mere fact that he is engaged in a given kind of labor ; we assume that the service we require will be properly rendered, because it is within the range of ordinary skill. In those employments that chiefly affect mere material, incompetence is palpably and unmistakably announced ; failure cannot be ascribed to occult causes, and ignorance cannot take refuge behind the mysterious and the unknown. The artisan is known by his works ; he cannot practice on the credulity or the ignorance of his victims. But if we are sick in a strange city, we do not call a physician at random ; we do not infer his competence from the mere fact of occupation, but from the specific fact that he belongs to a select class into which he could not gain admittance without a formal proof of fitness. To the eyes of the multitude the physician's art is shrouded in mystery ; his processes are far beyond ordinary knowledge and comprehension. Here deception is easy, because men in general are incompetent to discriminate between the true and the false. The artful quack will have a large following, and his gains are levied upon popular ignorance. There are only two conceivable safeguards against the evils of empiricism ; (1) a degree of general enlightenment that will qualify all men to discriminate between competence and incompetence ; or, (2) an enforced preparatory training of a prescribed kind for the few who propose to assume grave responsibilities and to perform duties of extraordinary difficulty and importance. The solution of the problem by the first method is clearly impossible ; people in general can never be educated up to such a point as this ; if all had the talent required, they would not find the time needed to secure proficiency in a specific and difficult line of study. But if such a consummation were possible it would virtually obliterate all professional lines, for these are based on the fact that the few have knowledge and skill that are not possessed by the many. The only practicable safeguard against empiricism, against an ignorant and culpable trifling with the highest and dearest of human interests, is a training of a prescribed kind and degree for all who would assume such grave responsibilities and duties.

Let us now consider the fact that the prerogatives and privileges everywhere accorded the recognized profession are a tribute voluntarily paid by the multitude to exceptional knowledge and skill. Between "occupations" and "professions" there is this broad distinction, — that the first involve chiefly a trained *hand*, and the second a trained *mind;* that, in the first, muscular dexterity is at a premium, while in the second, mental acumen is the condition of success. Here are two extreme types of human activity, — the toil of the hand, in which the mind scarcely concurs, and the toil of the brain, which involves but a minimum of muscular energy. Now most men will devote themselves to that variety of labor in which skill is most easily attained; and so it follows that trades and occupations will engross the attention of the great mass of the human family. There will be many builders, but few architects; many soldiers, but few captains; many who follow, but few who can lead. Subordination is thus the law of human society; not subordination based on caste, or the accident of birth, but upon fitness for higher or lower forms of human labor. This law not only divides the world into two very unequal classes, — the many who must toil with the hand, and the few who may toil with the brain, — but it also determines a similar division of mental labor. In this limited field of human activity the lower and easier forms of intellectual labor will attract the many, while the higher and more difficult forms are held in reserve for the few. It is this last variety of labor that is strictly professional labor. This is the narrow field, doubly limited, of professional activity.

I have spoken of one variety of intellectual labor as lower and easier, and of another as higher and more difficult. What is the basis of this distinction? I have spoken of two generic varieties of labor,—one that involves a maximum of mental effort, and the other a maximum of muscular effort; and I have not hesitated to speak of the first effort as higher and more difficult, and of the second as lower and easier, — lower, in the sense of being within the reach of the multitude, and easier, as being readily attainable. And so of those varieties of labor that call into requisition the energies of the mind, — some are higher and more difficult; others lower and easier, in the same sense as before. Proof-reading and the practice of law are employments that rank under the higher of the two general categories first mentioned; they involve chiefly the exercise of the intelligence, and are therefore distinguished from manual employments. But these two employments, though both intellectual, have very marked and significant differences. In the first place, the lawyer needs to be a man of vast erudition; he should possess a body of accumulated knowledge bearing on his special field of duty, to acquire which a life-time scarcely suffices. To become sufficiently acquainted with court decisions and legal enactments involves an amount of reading and study that is appalling. But erudition alone will not suffice. Above all, there is needed that rare and supreme quality of mind called the logical habit, developed to a degree that makes it akin to an intuition and its possessor a genius; that habit that can discover all the bearings of a legal principle, that can interpret it with clearness and precision, and can thus include a given case under it, or show that it cannot be thus included. On the other hand, the proof-reader needs information, but not erudition; his mind must also be trained to detect differences and note resemblances; but the faculty of mind involved is scarcely deeper than observation. The difference between the mental equipments severally required is almost world-wide.

I have spoken of professions as inclosed and fortified camps, admission to which is hedged about with difficulties. I have shown how the public good and the public safety require that the conditions for admission should be vigorously maintained; and it is now easy to see the subjective difficulties that bar the entrance to the professions, and to understand the ground for that deference that is instinctively paid those who have secured an honorable entrance within professional lines. These difficulties are two: (1) There is a vast body of peculiar knowledge to be studied and mastered; and (2) there is required a type of mind that is possessed by only a comparatively few.

The body of knowledge needed for professional ends consists of principles, rules, or maxims, which the logical faculty employs for the solution of the specific problems that occur in the course of professional practice. It is not merely a knowledge of processes and methods, but of the principles which underlies them and give them their validity and their efficiency. It is *scientific* knowledge, because it permits the logical faculty to discern remote causes and to predict remote effects, because it permits prevision and revision. It is on this ground that professional men are men of science, clairvoyant and far-sighted; who can see clearly where other men are blind; whose vision reaches far beyond the point where ordinary vision stops.

The source of professional life, activity, and progress is that body of doctrine constituting the science whose outgrowth is a rational art. Processes are improved by making the transit from cause to effect direct, easy, and certain. The first solicitude of rational practice is therefore to discover the nexus that binds effect to cause, or the route over which cause travels toward effect. Mere art sees only cause and effect; but rational art not merely sees cause and effect, but can trace the route traversed by energy on its way to its object. Improvement in professional practice must then come through the previsions of science; and the binding and inspiring force that insures professional unity and strength, is that body of doctrine whose principles determine rational practice.

But what is the ultimate source of that science which gives to the professions their inspiration, their life, and their growth, and which is their law of progress? It has been said, "Progress propagates itself from above downwards, and this to the farthest limits; for science never ascends." * From the very nature of things there must be a recognized source whence professional knowledge may be augmented, renovated, cultivated, and finally taught. This points unmistakably to a University connection; and it is an historical fact that the three typical professions owe their origin, continuation, and prosperity to the great seats of learning. From this analysis we now gather the following essential facts:

1. The Professions are close corporations, privileged bodies, whose membership is regulated by law or by the weight of public opinion.
2. Professional privileges and prerogatives are the tribute voluntarily paid by the uninitiated to superior wisdom and skill employed in behalf of the highest and dearest of human interests.
3. The only practicable safeguard against empiricism, or the ignorant and culpable trifling with life, liberty, and estate, is professional training of a prescribed kind and degree.
4. The Professions belong to that category of human employments involving the use of the intellectual activities; and, farther, are those intellectual employments which require the largest body of peculiar knowledge and the use of the highest faculties of the mind.
5. The knowledge required for professional ends consists of principles, maxims, or rules, which the logical faculty employs for the solution of the problems that occur in the course of professional practice.
6. Professional men are men of science, because they are armed with those previsions which only science can supply.
7. The source of professional unity, prosperity, and growth is the specific body of doctrine which is the rational basis of its practice.
8. The three typical professions have formal recognition in great seats of learning. This recognition is the source of self-respect,

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* Le progress se propage de haut en bas, et cela jutqu' aux derniers limits; ear la Science ne remonte jamais."—*Boussingault.*

maintains an *esprit du corps*, and augments and perfects the body of doctrine that is the basis of professional practice.

Being thus furnished with the marks that distinguish "professions" from "occupations," let us now inquire into the actual condition of the teaching art, and thus, by comparison, determine its claims to professional recognition:

1. In this country the conditions for membership in the teaching-class are determined by law; and admittance is guarded by a formal examination. This official examination, conducted under prescribed forms, carries with it the implication that the interests committed to the teacher are of a grave character, and are to be expressly and carefully guarded. Here is certainly a distinct recognition of a teaching-class, and in this fact we have, seemingly, one of the marks that distinguish a "profession" from a "calling." But if we stop to examine the conditions of admission to what we will assume to be the profession of teaching, we shall find that the defences of our camp are of such a nature that they form no real obstacle to admission, and make no real distinction between professional and non-professional. The test for admission to the three typical professions is the possession of *peculiar knowledge*, attainable with difficulty, and therefore not possessed by people in general. What is the formal test for admission to the teaching-class? The possession of that kind and amount of knowledge possessed by every intelligent and moderately educated man and woman. This test, then, is formal and not real; these defenses are shadow and not substance. This discrimination is between ignorance and intelligence, and is evidently based on the assumption that the sole element in fitness to teach is a certain amount of general knowledge. This fact points back to the period when the ability to read was a rare accomplishment. But since that time, not only has the whole world learned to read, but the grade of general intelligence has been raised to such a height that, in point of mere scholarship, there is no determinate difference between the citizen and the teacher. Suppose popular education to be carried to such a degree that citizens in general have that knowledge which now distinguishes the physician. Then this professional line would be virtually abolished. If, then, the possession of ordinary knowledge is the test of fitness to teach, there is no real ground in law for re-organizing teaching as a profession.

2. But here, again, public sentiment is in advance of law. There is a vague but almost universal feeling that "fitness to teach" involves an element besides mere scholarship. Speaking generally, this feeling has no better foundation than the observed fact that men

and women of good scholarship often fail in their efforts to teach. There must be something lacking, though the unknown factor has not been defined and brought into consciousness. Besides, there is considerable respect for marked success in teaching, and, sometimes, considerable deference to the opinions and rights of the teacher, though there is no general admission of the fact that teachers have their vested privileges and prerogatives, such as are accorded the members of the typical professions.

3. Through the influence of advanced thinkers and writers on education, the fact that teachers need a special and technical preparation for their duties has been recognized in the establishment of normal schools. This marks a most important step in the history of the teaching art. According to the old conception, but a conception which is widely prevalent to-day, teaching ability was synonymous with general scholarship; while the modern, progressive idea is that teaching ability is general scholarship plus technical training in methods. The Normal School is the exponent and the embodiment of this advanced educational thought, and, I repeat, its creation marks an epoch in the history of education. The conclusive argument for normal schools, when reduced to its simplest expression, is that they are necessary safeguards against empiricism in teaching. The law now says that prospective teachers may superadd a training in method to their general scholarship; but it does not say that all who propose to teach must have this amount of special fitness. Still, this permissive act of legislation is the first real recognition of the professional character of teaching.

4. Up to this point I have been looking outside of the teaching art and the teaching class, in public opinion, and in public opinion expressing itself in law, for grounds that might justify me in including teaching among the professions. I now turn to the art itself for the purpose of discovering whether it has the intrinsic marks of a profession.

Of the two categories of human employments severally involving the resources of the hand and of the head, teaching unmistakably belongs to the second; it is an intellectual occupation. And it further belongs to that restricted number of intellectual employments in which rational practice involves a large body of peculiar knowledge and the use of the highest faculties of the mind. The teacher's art involves the perfecting of the mind through the elaboration and the assimilation of knowledge; and if his processes be rational he must be a master of mental science, and must be able to interpret the laws of the intelligence, and apply them to the getting of knowledge. I need not stop to mark how abstruse a subject mental science is; it is sufficient to remember that even a liberal education usually stops short of a tolerable mastery of it.

5. The teaching art rests on a basis of psychological law; hence there are principles, maxims, or rules which the logical faculty must employ in the methods and processes of the school-room. Besides that general knowledge which comes within the needs and the possibilities of men in general, the teacher requires for his special duties a particular body of knowledge which is beyond the needs and even the possibilities of the ordinary scholar.

6. Furnished with such a body of doctrine as I have first indicated, the teacher may be a man of science in the same sense and to a similar extent that the enlightened and skillful physician may be; for he is armed with the previsions of science, and may thus penetrate remote causes and foresee remote effects, and may perfect his processes by making the transit from cause to effect shorter, easier, and surer.

7. It is evident, farther, that this body of doctrine is the only trustworthy source of improvements in the art of teaching. It is the only basis for the discussion of methods, the only ultimate criterion for testing the validity of rival or ambitious systems of instruction.

8. Finally, the art of teaching has received professional recognition, by the side of Law, Medicine, and Theology, in the Universities. That we may estimate the importance and the bearing of this act, let us record three very significant facts in their order of historical sequence. According to the earlier modes of thought, teacher and scholar were synonymous; a later, but still recent and even present notion, is, that teaching ability is general scholarship *plus* an empirical knowledge of methods; while the latest conception is that fitness for teaching involves three elements: (1) general scholarship; (2) a knowledge of methods; and (3) a mastery of that body of scientific doctrine that explains methods. Here we record three distinct and progressive epochs in the history of Education, three phases of thought bearing on the most comprehensive subject that can engage human attention. What is the bearing of these facts on the question of professional recognition? In point of mere scholarship there is now no distinction between the teacher and the well-informed man and woman; hence no professional lines can be drawn on this basis. When we add an empirical acquaintance with methods to general scholarship, there is distinctive knowledge that is enjoined on the teaching class, but it is not the kind of knowledge that can give a professional character to an occupation; for this high purpose

nothing but a body of doctrine will suffice, such as is implied in the study of education in the light of history, philosophy, and criticism.

In the last analysis there are three conditions upon which an art can claim the high distinctions, prerogatives, and advantages that are accorded the typical professions.

1. The art must involve the conservation of human interests of the first order.

2. The proper conservation of these interests must involve the exercise of extraordinary skill.

3. The possession of a peculiar body of knowledge, scientific in character and attainable with difficulty.

Any art which is practiced under these conditions, whose processes are rational or tend to become so, is virtually a profession whether it be called so or not; but no art, however exalted its nature or pretentions, can be admitted to this distinction unless it be pervaded by the scientific spirit; unless the body of doctrine which underlies its processes be cultivated, expounded, and explicitly taught; and unless, finally, the possession of this knowledge is made the test of fitness for admission to the privilege of practice.

The art of teaching certainly fulfills two of these conditions: it holds in its keeping the highest of human interests, and demands for the full attainment of its ends the exercise of the highest skill The third condition, the profession of an articulate body of doctrine and the indwelling and the inspiration of the scientific spirit, is but very imperfectly fulfilled. The practice of our art is chiefly empirical, *i. e.*, based on imitation and precedent. As yet, teaching is an art without an explicit science; the science exists, but its existence is not acknowledged nor even suspected by the great body of teachers; still less is this science generally cultivated, expounded, and explicitly taught. One of the most discouraging circumstances connected with our calling is the skepticism and indifference among even prominent teachers as to the existence and value of educational science. We may see why it is that the organization of chairs of education in some of the leading Universities of the world* marks an era in the history of education, and gives to every real teacher new hopes and a new inspiration.

Finally, if it be asked whether teaching can ever be a profession in the strict and limited sense in which law and medicine are professions, I unhesitatingly answer *No.* The reason, though not explicitly stated, has already been given. Fitness for teaching involves two distinct factors: (1) general scholarship or literary culture, and (2) a body of special knowledge accompanied by technical skill. So far as general knowledge goes, every well-educated man or woman has partial qualifications for teaching. There is an element of truth in the popular belief that scholarship is synonymous with teaching ability. Recalling the figure already used, if we liken the professions to inclosed and fortified camps, on one side the approaches to our camp are open to the multitude. If, however, admission to our calling were conditioned on the general possession of that special knowledge which constitutes the science of teaching, then it would be a profession in the least sense of the term. But of all who teach, only a very few design to make teaching a permanent calling. Only a few will therefore study their art in its scientific aspects; only a few will *profess* teaching, *i. e.*, devote to it their time and their talents. Notwithstanding this fact, there will be a teaching profession. Out of the large number who teach, a few will be master-workmen, and these will know their art, both as a series of processes and as a philosophy. With the teaching of educational science, men of talent and culture will here find a field for the exercise of their best powers, and the professional body of teachers will be thus reinforced.

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EMANCIPATION OF TEACHERS.

BY W. N. HAILMANN.

If any country needs free teachers, teachers who know no authority beyond the natural, logical laws of their profession, it is surely our own, — "the land of the free." The very basis of our institutions is freedom, perfect self-determination, full equality before the law and before the possibilities of life. Freedom and America have come to be convertible terms; and, other things being equal, the worth of a citizen depends on the degree of freedom attained by him, — for only in the measure in which we are ourselves free, can we respect the freedom of others. Hence the education for free citizenship, for freedom, is the most important concern of our schools, ranking all others, however weighty; and it is the fact that our public schools, — less than all others trammeled by outside considerations, — are best prepared to lead to free citizenship, that entitles them to be respected and fostered as the "palladium of our liberty."

Now as love is inflamed only by love, as thought is fired only by thought, so freedom alone can kindle freedom. A servile education may train slaves or despots, but never free men and women. Hence we find even in Republics of our day comparatively little freedom. The church, society, the State, low passions, — more particularly a brutal egotism that manifests itself according to circumstances as cowardice, as regardlessness, or even as cruelty, — hold every one more or less captive. For this reason progress is slow, because a servile generation cannot educate a free generation. It may, indeed, as the experience of our blessed country proves, lead it steadily toward liberty, if it is actuated by this yearning, but it can do this only in the measure in which it emancipates itself.

Of course, freedom does not mean here the unimpeded indulgence of all desires and aversions, according to chance, whim, or passion; such a freedom were that of the despot or of the licensed slave. Freedom worthy of man is always moral, — *i e.*, it rests on a true appreciation of human relations, of good and evil. Freedom, self-determination, gives us rights; morality, duties. Freedom permits us to decide what we shall do or abstain from doing; morality bids us do nothing that might work injury to humanity, to leave nothing undone that might work benefit. Freedom grants us the exercise of our faculties; morality enjoins us to use these faculties in such a way that others may not be deprived of freedom; nay, that they may be enabled to enjoy it in a higher degree. Thus each one has the right of personal liberty, but not the right to make others his slaves, and hence, too, the duty of preventing the enslaving of others. Each one has the right of free speech, but not the right to withhold this liberty from others; and this right imposes the duty to protect others in the right. The same is true of all fundamental rights; the claims upon life, happiness, the use of the earth, property, etc.

Moral freedom, true liberty, always implies corresponding duties; is hedged in, as it were, on one side by the negative duty of not infringing on the freedom of others; and, on the other side, by the positive duty of protecting others in the same freedom.

Only in this sense shall I use the term emancipation of the teachers, as a liberation from unjust and undue oppression or control; but, at the same time, as a conscientious self-preparation for a moral use of the freedom thus obtained. The teachers must, indeed, be set free; but, before entering upon the exercise of their functions, they must be sure first that no injury will come from their work, and secondly, that they will further the interests of those intrusted to their care. You will see by this that purely tentative teachers, mere bread-and-butter pedagogues, or stepping-stone interlopers of both sexes, have no business with this sort of emancipation. It is only for true and full men and women who feel their responsibility, and are prepared to assume it efficiently.

The first fundamental condition of freedom is external independence. Hence the free teacher, too, should have to obey in the discharge of his duties only the inner requirements of his profession, only the laws of his science, or laws that are in accord with his science; he should be independent of every authority that has no place in his science, or that does not rest upon his science. For how can he who himself serves extraneous authority, educate his pupils for freedom, for independence from such authority? We see this variously exemplified in many great school systems, — so-called, — of our time, which in many, perhaps in most, cases serve non-pedagogic masters. They petrify, they are hostile to reform, they grow nervous and even vindictive under criticism, they are always at the top of the ladder, there is no Excelsior in their dictionary; they may modify their methods, but they rarely modify their aims, — it was the three R's twenty years ago, and it is the three R's to-day. It would be useless to inquire how far the disadvantages of great school systems are due to their extent. Such so-called systems or complexes are, now at least, an unavoidable necessity; and the practical question for us is, What position should the teachers hold in these, in order to be enabled to educate the youth of the land for freedom, for free citizenship? From what has been said, it may fairly be argued that this is possible only, if in the exercise of their duties they are free to follow their own science, the science of pedagogics.

The objection that, as yet, there is no science of pedagogics, or that pedagogics has not yet risen to the full dignity of a science, has nothing to do with the question; for it would be easy to show that whatever shortcomings there are in pedagogics, they are chiefly due to the servile condition in which teachers have been and are held, and that only the emancipation of her votaries can raise this science to the level of other free sciences. If the seed is to germinate, take root, and push stem and branches into the free air of heaven, where it may blossom and bring forth delicious fruit, it will not do to confine it in a box and set it away on some convenient shelf; it must be planted on its own soil and left to unfold freely, according to the inner laws of its being.

Now it is highly problematical that teachers will always, or at least generally, be permitted to follow the light of their science as long as they are controlled by persons who are strangers to the science of pedagogics. Our first demand, then, must be this: All official authorities that control the teachers, *as such*, should be chosen from their profession, or at least from those who have a professional knowledge of the teaching-science. If you should ask who is to choose these authorities, I might boldly answer, the teachers themselves. Yet this is opposed by a great number of practical difficulties, and by weighty considerations of justice. In the first place, the parents assist in the work of education, and so far as their own children are concerned they have even a greater interest in the work of education than the teachers. Again, to the State, respectively to the citizens composing it, the educational interests are the most vital concerns. Hence the parents, — both father and mother, — and the citizens as such,—both male and female, — must choose these authorities from among those whom experience, and, perhaps, the profession, designate as the best. Surely an emancipated profession could make its influence felt in such elections, and reduce the number of blunders to a minimum.

On the other hand, admission to the profession of teaching should, in all cases, depend wholly upon the judgment of its members. No more than can admission to the bar be intrusted to physicians, or consent be accredited professional practice of medicine to lawyers, can fitness for teaching be determined, even with approximate safety, by merchants, barristers, doctors, and artisans. These may decide on the score of scientific attainments, of character, and the like; but professional qualifications can be judged only by those versed in the profession, and surely these should decide. Professional schools and commissions, made up of wise and experienced teachers, should alone conduct examinations for admission to the profession. The school authorities may then choose their teachers from among those so admitted. Such a proceeding would prove a very efficient safeguard against imposition. The profession, through its examining commission, has determined the general fitness of the applicant, and the local board inquire into his or her special adaptation to the local work. It may not rid us wholly of inferior teachers, but it will surely shield the little folks against the pernicious infliction of a learned tramp, a hopeful graduate, or an aspiring seamstress.

Once admitted to the profession, elected, and installed in a position, the teachers must feel secure in the discharge of their duties. The whims of the inspector, the wrath of the superintendent, the dislikes of influential patrons, and the wiles of the position-seeker should have no terror for them. They must feel that only neglect of duty, want of efficiency, immoral conduct, or decided uncongeniality of temper can remove them from their positions. In all cases the accusation must be distinctly and explicitly made, the accused persons must have a fair and impartial hearing, and his or her fate must be decided by a tribunal of competent members of the profession. This may seem cumbersome when compared with the present expeditious modes of "dropping from the list," asking to resign, or dismissing at the end of the week, as you would, perhaps, an incompetent or disagreeable menial; but it is more just, and justice cannot be contemned with impunity. It is also more expedient, for by securing teachers against injustice and wrong, by relieving them of unworthy and harassing care and enhancing self-respect, you increase their efficiency in a wonderful degree, and induce the very best men and women to seek the ranks of this honored calling.

This, it appears to me, must be the ultimate aim of the external emancipation of teachers: the control of the work by the profession, admission to its ranks by the profession, and dismissal from official position only for cause and with the concurrence of a professional tribunal. Anything short of this is patch-work, or a merely transitional phase of the process of emancipation.

A more important inquiry for us, however, is, How shall this emancipation be accomplished? Who shall emancipate us? To this I can find but one answer: We must do it ourselves. This is the lesson of history, and it is the lesson of reason. Whoever would be free must free himself. Even when, as in the emancipation of negroes in the

South, the external liberation is accomplished by others, the more important internal emancipation, the inner fitting for freedom, so that its possession may be acknowledged as deserved and therefore genuine on all hands, is the business of the emancipated. Political freedom has been given the negroes, but social freedom they must deserve. The emancipation of woman from the time-honored tyranny of male bones can be accomplished, and is being accomplished, gradually and surely, only by women themselves. All male championship of women's rights is merely a concession wrested from just and right-thinking men by women who have proved to them that woman's head, heart, and hand are the needed and equal complement of man's. And how is it in our own calling? Where has woman succeeded in securing the same remuneration with man for her work? Where she has clearly proven that her work is of equal value, and not anywhere else. For the cases where the pay for man's work has come down to the pittances formerly paid to women only concern us here merely in so far as they show the truth of the reverse proposition, that where men's work is only equal to the work of inferior women, the inferior remuneration will in due time be justly awarded to both.

Freedom, as was shown at the outset, has a moral side, — implies duties, forbids injury and enjoins usefulness. Freedom may be granted or achieved, but unless the duties it implies are fulfilled satisfactorily, it will be, and ought to be, lost again.

On the other hand, duty well fulfilled will be sure, even in the ordinary course of events, to lead to corresponding emancipation; and if those concerned are conscious of unjust or improper delay, and assist the natural course of events, or hasten the advent of their well-earned reward, only duty well-fulfilled will justify them in this course.

Now since a freedom that could not be retained without injury to the whole, — in our case without injury to the interests of education, — would be of no value, it is above all things necessary that the emancipation of the teachers should be placed on a sound basis; that it should be built on a rock that will withstand all the attacks of its enemies, and there is no other such rock as duty well fulfilled.

In our efforts, then, looking toward the emancipation of our profession, our first and foremost concern is to look to ourselves; to make ourselves masters of our science, and adepts in our art; to contribute, each one according to his power, to the growth of our science, and to the liberation of our art from the fetters of routine and the mire of pedantry.

Unless we ourselves reverently recognize in our work the truths taught by our science; unless we ourselves are fully imbued in our work with the lofty enthusiasm that comes from a full appreciation of the high aims of our art; unless a clear perception of the light our science has to give, renders our inmost being athirst for "more light"; unless we are fully aware of the difficulties that beset our work, and deeply conscious of the responsibilities it involves; unless, in a word, we ourselves honor and respect our work as a free profession, — how can we expect those who stand aloof to honor and respect it as such? The mere fact of being *called* teachers does not justify our emancipation; it is needful that we *be* teachers, — *i. e.*, good, efficient, progressive, growing workers in the field of education, to entitle us to professional freedom.

The pedant, who would palm off his few crumbs of outside learning as the sum and substance of all wisdom; the routinist, who fancies his own particular rut the golden road to knowledge; the hireling, who sacrifices principle for bread, or betrays truth for position; the youth, who uses the teacher's rostrum as a way-station on the road to influence or wealth; the autocrat, who deliberately disregards the laws of child-nature whenever they clash with his own will or whim; the fogy, who turns pale when he hears the word reform; together with the host of incompetents to whom teaching is merely an occupation, and who will submit to any indignity for the sake of their position (or monthly pay), are not fit for emancipation; the only just reward for these is suppression in the fullest sense of the word. Emancipation, — full, permanent, genuine, — can and ought to come only to those who steadily, earnestly, unwearyingly labor to deserve it, in conscious efforts to do their duty in the light of the science of their calling, and of the highest ideals of humanity.

Nevertheless, although our emancipation should be primarily and ultimately our own work, there are other conscious factors in education whom interest and duty should prompt to assist us with all their mind and might. First among these are the parents, who are responsible in the highest degree, not only for the outcome of their own direct educational work with their children, but for all educational influences they permit to be exerted. It is of the greatest moment to them that those who have charge of their children's schools, should be fully competent to discharge their duties efficiently and with the greatest possible benefit to their children. Is it needful to show that this can be done only by teachers who deserve emancipation? And would a right-thinking father, would a right-feeling mother, in the "land of the free," withhold emancipation from those who deserve it? Or would they prefer to intrust the education of their child, destined for freedom, to a slave rather than to a freeman? — to one who is guided by their fancy, or to one who follows his own superior light of truth? It is easy to say what they ought to do, but what they *do* do depends wholly on their own insight, on their own emancipation from prejudice, error, and egotism.

In the next place, educational authorities, boards of education, regents, supervisors, superintendents, and others, if they have a just appreciation of their duties in the premises, should spare no pains to hasten the full-deserved emancipation of the teachers. For is it not their sworn duty to see to it that the public funds set apart for educational purposes be used to greatest advantage? And can this be done except through the appointment of truly professional teachers, who stand on the firm rock of their science, and who, armed with good will and high endeavor, would lead the children toward the highest ideals of humanity and know how to accomplish this?

"Ah, but how and where shall we get such?" they will ask you, with the smile "*now I've got you*" on their lips. Make them establish professional schools, encourage institutes and teachers' associations, place a premium on professional excellence, make teaching an honored and honorable calling and sufficiently remunerative occupation so that the best will follow it. "And what shall we do now, when so few deserve emancipation and so many are incompetent?" Do the best you can! Emancipate those who do deserve it, so that others may have an encouragement to rise to the same level, and you get rid of hopeless cases as fast as you can. What would you say of the superintending physician of a great hospital who, because the majority of his nurses were incompetent, would insult even those he knows to be reliable by annoying limitations and degrading control, and even in their pay keep them down to the level of his incompetents, thus driving them into occupations where there is more responsibility, and consequently more honor and — more pay? And can anything better be said of you, if you follow the same course of action in your schools?

Thus I might go on and show to what extent and in what degrees it is in the interest and duty of other professions, of cultured men and women, of citizens, as such, to aid in the emancipation of teachers. Yet, in all cases, it is needful for *us* to remember that, — so far as we are concerned, — we can have no claim upon actual emancipation except on the plea of duty well fulfilled.

SOCIETY IN ACCOUNT WITH THE COMMON SCHOOLS.

BY HON. D. F. DE WOLF,
State Commissioner of Common Schools, Ohio.

INSTITUTIONS that vitalize, or produce the growth of vital forces, must themselves contain vital forces. The acorn which has life in itself to transmit to an organized system of forces the oak, is itself the product of an organized system of forces, and the new oak extends to us its shade and beauty, and serves us with its strength, in virtue of the life it derived from the previous living activities. We may trace on paper the process and the stages of its development, the material which is to be in the soil, and which must be laid hold of and fashioned into the new being. The life, the real agency of growth, does not manifest itself to the dissector's knife, but only through the continued operation of the life which it has transmitted. But the essential operations of this life make known to us some of its characters; for it is said, in fact, we only know matter from what it does. Hence, given a new purpose sought from these forces, we know how to adjust their conditions to the accomplishment of this purpose.

First, then, what is the purpose of the system which we would establish, — the work it is to do? To educate, it is said. Yet if this word *educate* could at once be reasoned out of existence, good as is the service it may possibly have done in its day, it would be a long step toward the better understanding and the better doing of our work. We have been so long familiar with the phrase, to educate faculties, to lead out, develop, unfold faculties, that we come to think that what we have to do is to sit down beside our victim with the proper instrumentalities for e-du-ca-ting, pulling out, dragging out, any way to get out his faculties. It would be an interesting sight to observe a person who entertains this idea, in that fullness in which it is often sought to be inculcated, sitting down beside an acorn, or an oaken twig, and racking his brains after the best methods of e-du-ca-ting the twig and swelling its trunk into larger proportions.

In the days when chemical science had just started into new life, it became necessary for medical writers to forewarn their readers that *digestion* was not maceration nor chemication, but *digestion*, — an operation of vital forces, and to emphasize the principle, *vis medicatrix naturæ*. Scientific agriculturists had also to modify the first ideas of Liebig, regarding the supply of nourishment to plants, recognizing more fully the peculiar nature of vegetable life, and the necessity of calling forth its activities, instead of doing away with the necessity of such action. And fertilizers are now not administered ready dissolved, nor even easily soluble, but rather in insoluble compounds which only vital forces can separate and appropriate. Men have in these days learned from experience and observation that the action of vital forces within the tree is the main dependence for the enlargement of its body and the multiplication of its branches; the production of its larger vital forces which are, in turn, to be transmitted. They have learned that man's chief office is to stimulate these vital forces, and to place within the reach of the plant's organs the materials which they are to use in building themselves up. Let us think a little slowly and see what are some of the facts that induce mental activity, and thus the increase of mental power. Let me set forth, for a moment, great things by small. While Superintendent in Toledo, I had a room where I brought, at certain stages of their work, several classes of pupils of the same grade, and gave them common tests, — in simple matters but necessary ones, as preparatory to their future progress in the schools,—especially in the writing and adding of numbers with rapidity and exactness. The pupils of the older teachers used to stand at ninety or ninety-five per cent.; those of the new or inexperienced teachers stood at thirty or forty per cent. After this exhibition of what the schools of the older or skilled teachers could do with the same opportunities, since the classes came from the grades below to all these teachers at the same time, the new teachers and their pupils could, and usually did, make as much progress in their work in the two weeks following these tests as they had done in four or even six weeks before this lesson. The teacher was not so much taught how to do her work, as she and her pupils had been placed in a new atmosphere, with new but natural stimulating influences.

Every one can now see that this personal, concrete lesson was worth a dozen abstract arguments, however persuasive the superintendent may have made these arguments. Inside of the new teacher and her pupils has been compactly and firmly established a high order of sentiments.

1. The strongest possible motives for effort have been presented to them in the most forcible of methods,—example and contact with the fact. These low per cent. schools stand related to these higher per cent. classes as fellow-pupils,—social instincts are awakened. 2. The certainty is impressed upon them that a standard may be, and will be, exacted for promotion along the course, — personal interest is awakened. 3. These other pupils have only our capacities, and they have

done twice our work in the same time. If they can do it, we can do it. Confidence has been inspired. Finally, I *must*, I *ought*, I *can*, ripen into a very potent "*I will.*" And, now, with opportunity and wise direction, we have in our system the elements of success. The rain and sunshine have bathed the latent possibilities of the acorn, and if the materials on which its powers may act are present in the soil, and these conditions continue, we shall in good time have an oak.

Let me illustrate further by a mere reference to other facts. We send our daughters to various musical centers in Europe to make them *prima donnas*. Why not transport the teachers here? We should not succeed. We never did succeed in making *prima donnas* thus. When we have become earnest for success on a larger scale, and begin to organize musical choruses here, we have set to work to create *musical centers*, as in Boston, New York, and Cincinnati. We shall make progress in the production of artists, then, in proportion as we build up art-centres here, create art-atmospheres here. Some of our cities are making this effort regarding music, the art of design, carving pottery, and perhaps in other directions.

For still further illustration of my thought, study the influence of the musical culture attained in such communities as the Yorkshire cities, an influence so potent in quickening the growth of the musical faculty in their people, that writers on heredity are almost ready to claim that the musical faculty, such as it is now known there and in other such communities, has been *created* as a new faculty within a few centuries.

Study also the secret reasons why the great seats of learning, like Oxford, Cambridge. Yale, and Harvard, like Eton, Rugby, and Exeter, are so successful in the production of great scholars and great men. How largely is it all due to the traditions, the sentiments, the character of the great men that still linger within the walls, and grow there as their characters are expanding elsewhere? There is a saying that you cannot make an accomplished weaver out of a South-of-England farmer, while the Flemish child takes as naturally to the formation of beautiful fabrics as a duck takes to water. The stimulus to this effort operates on him from his cradle. If these considerations serve their purpose, they are drifting us toward my first proposition; namely: that *the first essential requisite of a good system of public schools is such a quick and energetic public sentiment regarding them as shall furnish a constantly operative stimulant in all classes who are to be included in the effort to educate.* The influence of a portion of a community will do much. A really inspiring teacher will often leaven the maturer elements in his school, so that great vitalizing power will speedily manifest itself, and thus the high school will often be, and it should be always, a wonderfully quickening influence over the schools below. But all the forces of society should be so organized and directed as to work to this end. As well expect the acorn to germinate in the frozen soil, or the oaken twig to grow there, as the most studied system to achieve success in educating the youth of a community which disparages the work of educating all the individuals of the community. All this means simply that man is a social being. His motives for action arise out of this pregnant fact. The quality of his acts, as righteous or wicked, have reference mostly to their effect on society. Their quality as wise,—promotive of his own best good; or foolish,—tending to his personal disadvantage,—depends largely, if not wholly, on their tendency to bring him into advantageous relations with the social activities around him, or the contrary.

The strength of every State in reality, of the Roman State, *e. g.*, grew out of the wide recognition of this equality of privilege and independence of interest among Roman citizens. Its downfall resulted from the sharp contrasts arising out of the limitations of this idea to the Roman citizens alone. The sin of the Middle Ages, resulting in the moral and intellectual death of the race for one thousand years, consisted in the effort to nourish the few into splendid conditions, while the many were left to breed pestilence both moral and material. The church, *i. e.*, the whole social life in that case, was built on the suppression of the individual. It would have been just as wise to try to build a State or a community on the policy of stopping the physical growth of the masses in infancy, and making a nation of dwarfs excepting as to the few. A true society requires the use of all of the intellectual and moral powers of its constituents, as its defense and industries require their full physical development.

The first divine designation of man was that he is a being not fitted to be alone. The continuance of the race is conditioned on his *relations* through sex. The same law of dependence is established by the meting out to individuals, not all the faculties necessary for attacking nature from every standpoint, but distinctive faculties, fitting him to do distinctive parts of the work required to supply the expanding wants of the individual in society.

The growth of each individual toward perfection in society is conditioned on the growth toward perfection of *all* the individuals constituting society. A man can fashion a bow and a fishing-spear for himself. But let him even start toward civilized and cultured conditions, and he at once requires the aid of increasing thousands of his fellows in proportion to the number of steps he takes in this progress. He can here fashion one or two things that he requires, and if these are to approach the perfectness of form, or of adaptation to use required by a highly civilized man, he can only make one or two of the ten thousand things he wants. Ten thousand other men must be raised up around him to make good bread for him, which he cannot make good, and which a coarse, uncultivated boor cannot make good for him; to make good butter for him; to cook his meats well; to work up his wools and cottons, and linens and silks, into articles of taste and comfort; to plan and construct his house, his furniture, his harnesses, his carriage, his cars, his steamboats, his books, his newspapers, his pictures, his statuary, his telephones and telegraphs.

If a man is content to eat coarse, unsavory food, and to live in primitive homes; in other words, if he is content to live a half-civilized life, he may afford to see but half of his community civilized, able to use their possible skill to administer to his wants. But in making the individual, as to his ability to supply his own higher wants, only the ten-thousandth part of a man, the Creator has made each one, as to his capacity to enjoy, and his ability to possess the means of large and full happiness, ten thousand men in one by this very arrangement. But all this is conditioned on the individual's working in harmony with the laws of the man as created and as existing from the hand of God, who made *man* and not *a* man, but man as consisting of the interdependent individuals required to compass the general purposes of society, as no individual man is capable of doing. The branch of a tree is nearly as complete of itself as a man is complete and self-capable in and of himself.

Ambitious,—that is, wicked,—that is, unwise,—men always strive to run away from this thought, and to gain satisfaction through relative superiority instead of through absolute excellence. Relative superiority may be reached by pushing or keeping others down, and the happiness secured in this way may be enjoyed in as high a degree, in the wigwam or among *chiffoniers*, as in the palace or among commercial kings. But absolute excellence and its enjoyments, as we have shown, come only through the general excellence attained by the community, and this may be as well enjoyed by the million as by one; while that happiness derived from mere relative excellence can only be enjoyed by one or a few in each community, and the accidental success of a rival gives the death-blow to the happiness thus derived.

Christ's "*Our Father*" expresses the central thought of his philosophy. "*All ye are brethren*" intends to announce this interdependent brotherhood of the race. This brotherhood is not a sentiment. I am not speaking of social relations, but of utilities in society. It is a fiat interwoven into the nature of man. It cannot be run away from, and I repeat that the recognition of this fact, announced at the creation, is essential to the proper operation of a *public* or *common* school system. It is the soil out of which must spring all the tribes and generations of thought, the motive, the enthusiasm, the warming, vitalizing public opinion in which such a system is to live, move, and have its being. Out of this idea must grow its course of study. Not all knowledge, not all skill is requisite or possible to a man, to the individual. They are in the aggregate requisite and possible to man, to society, as made up of men, of individuals. Our system of education, which should embrace, as a science, the full life of the man, must seek the realization of this breadth of knowledge and skill in society. The *public schools* are to deal only with the underlying generalities of the effort, those certain essentials, — in great part instruments, both as knowledge and discipline, — that sustain a common relation to the activities that are to be largely differentiated in the *upper* departments of an educational system, — our colleges and professional schools, our apprentice system, and in the still higher departments of that educational system, the locomotive platform, the workshop, the forum, the studio, professional life. Our ideas of an educational system will yet, must yet, embrace all this in the public mind, before we can adjust even our elementary schemes to their work, and be content with this adjustment. This carries with it the thought that the fiat that planted these facts in the constitution of society, man, provided the fact, also, which every philosophical educator must sooner or later have discovered, that while not all knowledge or skill is requisite or possible to each individual, as a contributor of his part to society, so the acquisition of all knowledge or skill is not necessary to the full development or perfection of any individual man. A man is perfect, not when he can do all things well, but when he can do all *his* things well. The mechanic may be perfect as a mechanic, an original, intelligent, inventive mechanic, *a* man, without a knowledge of Greek. The same may be true of a physician. The Greek and Latin *professor* cannot see how a doctor can know the uses and diseases of the *acetabulum* without knowing the etymology of its name. Yet his vaporings on this subject disturb but little the scrutinizing judgment of the physician *educated* in the large requirements of his science. I need not stop here to say to educators that I have always advocated classical education in proper cases.

The thought I have tried to develop emphasizes to imperativeness the responsibility of each recipient of the benefits of this organized thing we call society; to contribute his full share to the uses and pleasures of that society, and to fit himself for doing this. Each man owes this to himself, and to his own family for whose happiness he is directly responsible; since only through a perfect *society*, all of whose *parts* are performing their distinctive functions to perfection, can the individual or the family arrive at their best and safest and freest conditions. The physician, *e. g.*, must burden himself with a proper course of preparation to perform properly his offices to me, or I suffer; my family leave me for the grave. *I* must exert myself to instruct his children well, or he suffers. But each parent and citizen also owes to all the interests in which he is concerned, to see to it that other individuals that make up society are educated also. The individual has no right to refuse his part. Society has a right to insist on it, and has no right to fail to insist on it, or to neglect its duty to provide for and foster this preparation. But this imposes burdens on us all! Yes, and why not?

The short-sighted novice in music curses the restraints which philosophy imposes upon him. But the philosophical teacher knows that only by a knowledge of the laws and principles of his art, and by a system of discipline and restraint in conforming with these laws and principles, can he arrive at that rapturous freedom in the exercise of his art which characterizes only the greatest masters. He knows that these masters have unbound *their* clumsy fingers and their halting faculties only by possessing their minds of the great laws of order and harmony, by becoming acquainted with the true nature of the things with which they have to deal, and through such discipline and mastery as bring mind and fingers into accord when bodies of musicians are to act together on the great masterpieces. The novice runs his fingers over the keys, and has *some* delight in his ability to make a savage noise. The artist lives a large life of freedom, of power, of pleasure, in a high realm of law to which he has climbed through self-denials and individual restraints. Only such masters of art and of the laws of art can act in freedom and in harmony among each other, and these can do it with rapture.

So the true philosopher will learn that only through this recognition of the true conditions of social progress, will he find himself and each of his fellows in the enjoyment of individual freedom, through the conformity of each individual interest to the general interest. Had I space here to develop the relation which organized instrumentalities, or *institutions*, as well as individuals, sustain to the growth or perfection of the greater organization-society, and thus this to the growth and happiness of the individual, the necessity that each *institution*, or grouping of individuals, and of working forces, should be rendered perfect in its relations to the distinctive purposes of each and of the whole would, I think, distinctly appear. It would be seen that the taxes or restraints that any of these institutions impose on the individual, tend eventually to the lightening of individual expense in the effort to secure happiness, and to the essential enlargement of that individual freedom, or individual liberty, possible to each. The restraints of a Sabbath, and its cultivating institutions, *e. g.*, are easily seen to contribute to the larger individual freedom hitherto only possible in this country as compared with that possible in some other countries.

The expense, as well as the restraints and self-denials, imposed upon different members of a community in the support of a system of public schools, have for a long time been dimly seen to contribute to that condition of things in which freedom is possible, and not only consistent with order, but tributary to the highest and securest order. The right of the State to tax men to support a system of public schools has been held to rest on the supposed narrow requirement of society for order as productive of individual freedom, such as ours in America. In the light of our argument it may be seen that this single idea embraces all that the most religious and philanthropic man can ask a system of education to do, since it implies for its full and successful accomplishment the free and full growth of the faculties of each individual, and the development in each individual of those desires for individual success which render a man active in the performance of his individual duty. The work of educating, then, no longer confines itself to the teaching of the three R's. It embraces preëminently the awakening of *ideas* and *sentiments* relating to success in life. The State, society, is not alone interested in the mere *intelligence* of the individual, but much more in his relations to success in his special calling, not only that he may contribute his part to the civilizing instrumentalities, but as the only way in which his intelligence will lead him to regard order as requisite to his freedom to develop practical results, and the freedom of others to do the same. Society is interested in the thrift of each individual, and it will demand that not only the knowledge and skill shall be developed, but that also those virtues which are essential to the securing of comfortable conditions shall be inculcated in the schools, such as self-denial, prudence, temperance in the gratification of artificial or unnatural tastes, temperance in eating and drinking, a high regard for institutions and arts which promote culture and virtue, such as music, literature, etc. It will demand that, above all, a high sense of social justice and social responsibility shall be inculcated, to manifest itself in the effort, not only to present a pure personal example, but also to promote, by other means than by example, pure character in others.

Men stand aghast at the prophetic rumblings of an unreasoning and relentless communism, and well they may. It is a more serious thing, I believe, than many of us dare speak above our breath. I verily believe,—and I am not constitutionally a croaker,—that a more thorough study of this problem of public education, and the development of higher thoughts regarding it than have ever prevailed, is our only safeguard against this communism.

A perverted system of religion has tried to content and to hold the masses through fear of the assumed power of priests to open and shut heaven, and through imaginary divine rights of single men to the obedience of these masses. These shackles have forever fallen from the necks of these masses. Machiavelianism has striven to repress these masses while in an ignorant, unreasoning, half-barbarous condition, by the superior cunning of the few. The wiles of this superior cunning no longer embarrass the multitude. Correct reasoning, and a greatly extended power to reason correctly, is, I believe, the only safeguard to society. To right reason there is no difficulty in the present conditions. With unreasoning passion to control the masses, the dangers thicken on every side, in proportion as the mere authority of self-constituted leaders ceases to be respected. The teachings of our progress hitherto are exceedingly instructive to us, and wholly reassuring. Every privilege that has hitherto come to the masses has given additional privilege and luxury, and even positive power, to the privileged. The lightning.speed of the railroad, with its royal Pullmans, and the luxuries it brings to the rich man's table, are possible to these rich only *because* they have so cheapened the means of travel and transportation that all may ride and may purchase these luxuries, thus making it an object to transport them to the rich. I can but hint at a thousand intimations that the privileged classes have nothing to fear, but all to gain, by the real progress in privilege and culture of the masses.

An exceedingly important conclusion to which this thought is, I hope, directing us is the certainty that the science of education is to be regarded as the highest science in the catalogue of important sciences, and that it is to engage the powers of the most vigorous thinkers of the day. This is a most manifest essential to the full success of a public school system. This subject is to-day the largest human interest. It embraces a much larger segment of our human life than this interest has been supposed to cover. It will go beyond the school-room into practical and social life. It will embrace a consideration of varied industries as a direct means of education in every community, and will add importance and interest to questions of political economy, such as tariffs and local manufactories. Its thorough development as a science will greatly modify our elementary courses of instruction. When the work of systematic education no longer ends with the common school-room, the *elements* of culture started there will be better mastered, and the nervousness regarding the *early ripening* of these elements into so-called *practical knowledge* will largely disappear, as also the distracting burdens imposed by this nervousness. If a boy cannot spell the words *Psychology* and *Metaphysics* at the age of ten, *e. g.*, he will not be despaired of, nor the system condemned, since he will be sure to know how to spell these words if his continued course of culture leads him into familiarity with the subjects which these words name ; and since, if he is not so led, he will not be regarded as an idiot because he cannot spell them. Ditto regarding the practical knowledge of many other things which cannot be practiced in schools, and which special callings will render practical through the *practice* they require, and a practical knowledge of which would be of no use in other special callings.

Again, — in the coming public school system, it will be deemed an essential that the minister of education shall be a minister of education and no longer a *mere* gatherer of statistics, having only the right to beg some third-rate legislator, who has not the capacity to make a speech on railways or town taxes, to give a stray hour's study to this subject, that he may bring this hour's study to bear on school-education in the single hour which our legislators now seldom find to devote to this *all*-important and worthy subject. But such a minister should hold a place on the floor of National and State legislatures in this country as he does in England and her provinces, and in other countries, in order that he may present to these legislatures the results of his mature and life-long thought for the perfecting of the school systems of the country.

When this true system shall come, the committee which has in charge the matter of presenting subjects for school legislation will no longer be exclusively made up of yesterday's farmers or lawyers, who have given the subject no time or attention, but who, of course, have confidence in their ability to solve all the intricacies of the subject in just proportion to their want of acquaintance with it. In that time a standing committee, or State Board of Education, made up of the best practical talent in each State, educators and others, will have power to present measures for the action of the legislature, after long and mature study of the subjects.

But, if all this is true, or half of it, a *most* essential requisite of a public school system is a full man or woman to conduct it and instruct in it. The new citadel of safety will be manned with wisdom and girt about with strength. Instead of its work being committed largely to girls and boys without reasoning power, original or acquired, or to martinets trained in special schools, or narrow experiences in school-life alone, the people will call to their aid, especially in our larger cities, which ought to lead in the matter, a body of large-minded, level-headed, thorough thinkers, cognizant of the great wants of the age, with the great tendencies of the age, and capable of moulding the system, establishing its practices, and linking its work on to the daily interests of society.

This carries with it several important particulars as essential to the procuring of such talent and ability for the work. The chief essential here has already been referred to as necessary to the internal working of the system itself; and that is, such a warm social interest in the matter as will direct the best and most cultured minds to assume and maintain an interest in this work. But culture can only result from cultured surroundings, as we have shown. Hence one of the most essential requisites of the coming system is such a social position for the teacher as will render the highest culture available in the schools.

There is no use criticising the teachers of our schools for their short-comings in matters pertaining to the formation of character, and of deploring the want of power in their schools to eradicate the grounds of fear from communistic tendencies and the dangers of ignorance and prejudice, so long as teachers are taken so largely from classes whose narrow means force them to adopt teaching to gain their bread, and are then denied such social recognition as will alone occasion that cultivation of the graces which give power to hold the best born to their best level, and to raise others toward that best level.

We may say this will impose impossible burdens on the well-to-do and cultivated portions of society. Very well; it is the price, as I believe, of their privileges. If these persons think that proclamations from pulpits, which few people hear except those who are almost as safe as the preachers themselves, will save society without the thorough education of the people, or if they think they have Machiavelian cunning to maintain themselves against the power of ignorance and prejudice, it is for such to take the responsibility of their theories. Besides this you have, under the lead of Jefferson and the other fathers, pronounced for the enfranchisement of all classes of men on a general conviction of its necessity for the purpose of good order and good government, and for their enlightenment as a corollary to this. We but seek to add to this general notion, that natural incitement of essential personal interest which is the heaven-ordained incentive to all human activity, and is not only, in its proper action, consistent with the general good, but is the only true promoter of the general good. The man who sweeps the snow from his own sidewalk is thereby not only accommodating his neighbor to this narrow extent, but he is taking the best course to secure its removal from all other sidewalks for his larger benefit and that of all of his neighbors. Under a peculiar condition of intellectual activity we have revolutionized, or evolutionized, several of the sciences, and have set their new forces to most practical work, all within forty or fifty years. We have converted religion, within the same time, from a system of dogmas, and from what was largely a scheme of priestcraft and kingcraft, to its original purpose of forming the characters of men for the uses of a high order of society. Both of these efforts have tended to enlarge the privileges and improve the condition of the masses of the people. Have they injured or humiliated the better few? Far otherwise. Shall we, with these lessons, continue to distrust intellectual and moral forces as the middle ages did, and still largely cling to gibbets and dungeons to secure safety to society? The time seems most propitious for the consideration of this subject. The popular feeling in all parts of the country during the interest excited by the assassination of President Garfield was tender, fraternal, and patriotic in an eminent degree; this feeling having culminated into expression through a providence that pointed strongly in the direction of our thought. Our hearts were magically knit to the heart of a man who, like a larger number of our great and useful men than ever before, lifted himself out of what are called the lowest walks of society into an honorable quality of life, in which all acknowledge a sensible personal interest. This peculiar expression of feeling, so spontaneous, so personal, so universal, is the index to a great civilized and civilizing human interest in all of the great capabilities of our race, a recognition of their use and serviceability to each man of us and to all men.

May we not, then, in the midst of the inspired and inspiring thought and work of our generation, in the way of conquering to the use of men the wonderful forces of the outer world, assume that we are ready, at length, to welcome, in the fullness of its benevolent and practical design, this higher inspiration to establish a truer social system, founded on no fiendish desire to level men down to a common death of all individuality, but on the supreme effort to level ourselves and all others up through opportunity and encouragement, through a recognition of the fact that perfect conditions of all the parts, the true interests of the individual, are attained only through the perfection of his larger self, society?

So let us build for the State our ship,
Laying square each block upon the slip;
With royal purpose and royal will
Let us fit, with energy and skill,
Whatever timbers grow around,
Covering *all* this hallowed ground, —
Timbers of chestnut and oak and elm
Into gliding keel and governing helm.
But follow well this plan of mine:
Choose the timbers with greatest care,
Of all that is brush and frail beware;
For only the well-knit, sound, and strong
To this vessel shall belong;
Cedar of Maine and Georgia pine
Here together shall combine, —
A goodly frame and a goodly fame,
And the Grander Union shall be her name;
For the day that gives such ship to the sea
Brings us larger and safer liberty.

COLOR-NAMES, COLOR-BLINDNESS, AND THE EDUCATION OF THE COLOR-SENSE IN OUR SCHOOLS.

BY B. JOY JEFFRIES, A.M., M.D., HARVARD.

It is not always remembered that the eye has, so to speak, two senses; viz., form and color. The sense of form and the defects of the eye interfering with it have been very thoroughly studied the last five and twenty years, and some knowledge of the same diffused in the community, who now recognize the words myopia, hypermetropia, or astigmatism, etc. Teachers and educators have naturally heard a great deal more about myopia and its being caused by school-life, the dangers arising from it, and its prevention.

The sense of color has only been quite recently studied in such a way as to bring an acquaintance with it within the scope of the general community. For the sense of form the eye, as a *camera obscura*, has to be very perfect, and quite complicated in its power of adjustment. For the sense of color a very simple eye will suffice. None of the accommodative apparatus of the organ need be present. The media need not be transparent, as is required in form-perception. The crystalline lens may be opaque,—namely, cataract,—and yet the eye be able to appreciate color quite well, when its form-perception is reduced to light and shade.

For both form and color-perception the eye is most perfect in the center, from here outwards becoming more and more defective. Look carefully with one eye at a word as long as "constitution" on an ordinary printed page, and it will be seen that in reality only the first three or four letters are distinct. The muscles of the eyeball turn it so easily along the line that we hardly notice that it is only the centre of the retina which perceives accurately. Now the same is true of the sense of color, which is also best at the yellow spot, as it is called, in the centre of the retina. Look steadily forward with one eye while the other is shut, and at the same time move a small bright-colored object, as a red wafer, gradually from the centre of the field outwards. One will be surprised to find how soon it loses its color and appears, finally, black, whilst its outline can still be dimly perceived. There is a central zone in which we see the three primary colors,—red, green, and violet; around this another, in which only two, green and violet, are seen; and outside of this, the rest of the retina perceives only violet or blue. This, at least, holds true under ordinary illumination.

After gazing at an object for but a short time its picture remains upon our retina, turn our eyes away as we will. This is the so-called after-image. On awakening in the morning, when the retina from rest is more sensitive, and looking steadily at some picture with a dark frame, then turning the eyes away, we shall see it wherever we direct our gaze; but the frame will appear of the reverse, namely, white. Now this is also true as to color. If we gaze at a green disk across the room, and have it suddenly removed, a red or pink one will appear in its place. The after-image, as it is called, will always assume the complementary color. These facts, amongst many others relative to the normal color-sense, are often unrecognized or forgotten. Their bearing on colored signals, by night or day, is, of course, a very practical one.

All over the civilized world communities are being awakened to the curious facts connected with the defect called color-blindness. These facts, hitherto regarded as of simply scientific interest, have assumed a practical value, which forces them to be recognized even by those who would officially ignore or suppress them because they come counter to their own ignorance, prejudice, or pecuniary interests, etc.

Investigation of a railroad accident in Sweden, supposed to be due to color-blindness, led Dr. F. Holmgren, professor of physiology in the University of Upsala, to the belief that the defect must be frequent, and hence dangerous on both land and sea. Difficulty arose as to any certain method of detecting it quickly. The absence of any such method has been the especial reason why the defect has hitherto escaped observation. Using the theory of Young-Helmholtz, and applying a test suggested by Seebeck, he finally brought out his now well-known method with the colored worsteds. By this, and the imitations of it devised here and there, large numbers of persons have been examined all over the world, including both sexes, all colors, ages, and degrees of civilizations, etc. It is a curious fact, that till the expert could test quickly and accurately, the existence of color-blindness to the extent now proved remained unknown. It is now admitted that four per cent. of males are more or less color-blind, and in females not over one-fourth of one per cent. are thus affected. My own tests, up to the time of writing this, are of 19,101 males 801 were color-blind, whilst I found but 11 females among 14,731 defective in their chromatic sense.

Color-blindness may be said to exist as red, green, or violet blindness; the first two including each other, and the last involving blindness to the complementary color; viz., yellow. Violet-blindness is so rare that the term color-blindness means, now-a-days, red or green blindness. It will be noticed how these colors correspond to the sensation derived through the three retinal zones before described, etc. Whilst the mistakes as to colors a color-blind makes are very characteristic, and seem most extraordinary, yet when we come to define what the defect is, it will be found not so easy or simple. Perhaps the best conception, and one most readily retained and kept in mind, is this ; viz., that to the color-blind (red or green-blind) all colors containing either of their two defective ones become so much darker, and seem as if they had been made with gray, or black and white mixed. This, of course, is in proportion to the amount of the color-blindness and the amount of the red or green in the given color.

Color-blindness has not been detected by present methods of teaching colors by charts, colored objects, etc. It has escaped detection even where the best methods were employed by very intelligent teachers. This, however, is not so strange when we realize how it is not discovered in every-day life, and that even the adult and educated color-blind are found ignorant of their defect, often stoutly resenting any lack of chromatic visual power.

Recent extended research has proved some facts in relation to color-blindness which must be taken into consideration in relation to teaching colors in the schools. It is a congenital defect, and, as has been said, much more frequent in the male than in the female. It is hereditary, and follows the general law of heredity. Females, though they escape it, transmit it to their male offspring. As there is no rule without an exception, so here also the defect has been found in all the females of several generations of one family, and only in them, the males, normal-eyed. It may occur congenitally in *one eye only.* Several monocular cases have been seen and carefully examined by very competent observers. Age, color, race, civilization, or occupation do not seem to have any influence on its frequency to judge by present statistics.

The color-blind who can be put into the so-called hypnotic or mesmeric condition have temporarily been able to see colors normally; also the normal-eyed who can be put into this condition are rendered, for the time they are so, like the color-blind as to chromatic sense. Injuries which affect the brain may cause what is practically color-blindness, and in one eye only. Such cases are recorded. It has long been known as a symptom of certain cerebral affections, or cerebral and ocular troubles described in ophthalmic treatises.

A condition of chromatic defect simulating perfectly color-blindness is produced by chronic poisoning from alcohol and from tobacco, or both combined, — not but what thousands of people abuse both these stimulants without having their chromatic sense interfered with. It is meant only that when they produce serious trouble, often most insidiously: then the person is dangerous as a signaler on land or sea, for his power of seeing colors may be below the normal. The *in*temperate lecturers, who have recently quoted the writer as having explained the greater amount of color-blindness among males by their greater abuse of alcohol and tobacco, have, of course, made the story out of whole cloth. It is, however, too strong an untruth for them not to continue to do so, notwithstanding any remonstrance.

Congenital color-blindness is incurable, but may be somewhat palliated. It has been long known that in artificial light (not the electric) the color-blind did not make such gross mistakes, and more readily concealed their defect. Now, looking through a piece of lemon-colored glass, equivalent to gas-light, will help the color-blind in daylight or in electric light. The same is true of looking through a solution of gelatin stained with the aniline red dye, called fuchsine. There is no temporary or permanent change of the color-sense from all this, but simply alterations of light and shade which the color-blind have learned, unconsciously, to avail themselves of. This very interesting point, as also how they learn to escape detection, cannot be here dwelt on: it would need an article longer than this.

Congenital color-blindness is *incurable*. No amount of practice with colors, or familiarity, will alter the color-sense. This is now so well understood and recognized that it would be but a waste of time to argue about it. The idea arose, first, from some observers supposing that children were color-blind because they did not know the color-names of objects, and that this was cured when they had learned and could remember these; secondly, from the color-blind themselves and their surroundings, imagining that the defect was altered or remedied because it was, even unconsciously, more easily concealed. The bearing and force of all that has so far been said will be apparent when we sum up the facts; viz., that color-blindness exists in four per cent. of males, that it is incurable, and that it most readily escapes detection, no methods of teaching colors exposing it. There are four boys out of a hundred who can never be made, by any means we know of, to see colors as the other ninety-six readily do.

The only way we have of knowing how a sensation affects another person is by what they say or what they do. Now, as to the effect of color on the brain, we cannot trust the tongue in color-names. The color-blind *may* use the same names as the normal-eyed, hence we must cause them to exhibit their mental impression by muscular effort. This we can readily do in methods of testing dependent on the principle of *comparison.* Of the comparison-method, Holmgren's, with colored-worsteds, is by far the simplest, and can be made use of in the primary schools without introducing anything new. A *correct selection* of worsteds is only required, and these can be employed in the object-teaching now introduced almost everywhere. A full description of the method will be found in my manual, "Color-blindness, its Dangers and its Detection." This should be a reference-book in the schools, accompanying a standard set of worsteds. If, on the study of the description of the test and the application of the latter, the principal or teacher fails to decide the presence or absence of chromatic defect in a scholar, then an expert can be consulted, and must be; because not only should the principal or teacher not waste time over a color-blind child, but the parents or guardian ought to know of the defect. It is most important that there should be the earliest knowledge and recognition of color-blindness, since it must affect the child's future career and choice of occupation, etc. I found color-blind children of railroad engineers in our Boston schools whose one idea was to follow their father's employment. In a Savannah school I found two brothers color-blind whose father was a Savannah pilot. Fortunately the present United States laws would prevent these boys taking up their father's profession. But not only where there is *danger* from color-blindness should warning be given as to the child's future. In all employments where a recognition of color is important the color blind are debarred, as experience amply proves. It is cruel to let them unconsciously take up occupations in which their defect will surely cause them to fail, sooner or later.

This examination of the color-sense which has gone on in the last few years in various parts of the civilized world, has developed a hitherto unrecognized fact; namely, the extraordinary ignorance, on the part of males, of colors and color-names: this not only with school-boys of all social grades, but even among quite well educated adults. During the first six months of my work testing in our Boston schools I could not believe my eyes or my ears, and the teachers were as astonished and with difficulty persuaded of the truth. The same experience has since been reported by all examiners in Europe. Girls learn colors and color-names from occupations and home-life, dress, etc. In a general way it has been presumed that boys did the same, till the reverse has gradually dawned upon us, resulting from continued absolute experiment.

The lack of a knowledge of colors and color-names is, however, quite a serious drawback in very many occupations, especially among our manufacturing and artistic industries, etc. Why do not males discriminate colors and shades as females do? Simply because they are not taught them systematically, and they have no opportunities of learning them out of school. The higher the social grade of boys, the more they will be found to know of colors and color-names from home-surroundings. It may be, however, quite as important that the lad who is to seek his living as an artisan, should be instructed in colors and color-names. The necessary teaching can be carried out with no further time devoted to it than is now wasted in what is considered instruction.

The last quarter of a century has shown how the ear, the voice, and the hand can be trained and educated. In the sense of form the eye has been wonderfully taught. The sense of color has been almost totally neglected. That it can be equally taught and educated there is abundant proof of in the extraordinary delicacy of the sense attained by so many workmen in colored fabrics, etc., mosaic setters, and the like. It is not here meant that methodical and careful education will develop the sense in the individual beyond its natural power, but that such teaching will enable the eye to discriminate *within its range*, as does the ear within its range, etc. On the other hand, it is equally not *denied* that generations of teaching *may* heighten the color-sense and render it more acute. It has lately been proved that the sense of sight and hearing exists to a greater degree in uncivilized men, where these qualities are required to obtain food by the hunt, or escape danger from enemies, animals, or men.

It is very evident that teaching color in the schools must embrace the detection of color-blindness in the boys, the learning the names of the commonest colors at least, the sharpening the appreciation and discrimination of colors, and thus the gradual education of the color-sense. To do this, instruction must commence in primary or Kindergarten work, and be steadily pursued through school-life.

Colors must be taught, and not simply the color-names of colored objects. A blind child will give the name of the color of grass, trees, apples, bananas, bricks, its companion's clothes, and perhaps even hundreds of objects the color-name of which it has learned. So also the color-blind boy will do the same. It is one thing to learn the color-name connected with a remembered *object*, and a very different thing to connect the right name with the sensation a green color arouses. Here has been the mistake which object-teaching has rather fostered than corrected.

Any method must be systematic and thorough, commencing at the very bottom. How little was accomplished in educating the ear, the voice, and the sense of form for the eye, till correct principles were understood and acted on. Nothing can be accomplished in color teaching till the mistakes of the past are understood, admitted, and corrected. The very means adopted have but helped to blind the teacher and the educator in the belief that colors were being taught, when, in reality, nothing but names associated with certain objects were being remembered. The color-blind boy can, as I have seen, point out the colors in the charts heretofore used, as well as the normal-eyed. A certain spot in a certain position on a large card has a name attached to it which he remembers, and this is all he has learned. It is very true that many a teacher, disgusted with the charts, blocks, etc., placed in her hands, has discarded them all, and gathered together larger or smaller collections of colored paper, worsted, ribbons, etc.; but no exercise with these has revealed the characteristic mistakes of the color-blind boys she has taught. I have detected color-blindness among the best-taught classes. I have witnessed the best color-teaching, and there was really nothing in it which would inevitably detect a defect of the color-sense. It would not have astonished me at all to have found, on trial, one of the exhibited boys color-blind. I found in a factory a color-blind man engaged in cutting up colored board into cards. His fellow-workmen would not, of course, admit his defect, but his employer had experienced a "destruction of stock," and could appreciate the characteristic mistakes he showed with Holmgren's test, etc. It is not expected that this idea of the need of connecting a name with a sensation will be received at once, as it seems so to militate against every-day knowledge. It will, however, gradually show itself in the systematic color-teaching, which is here argued for. Practical illustrations in our schools would much more readily prove this statement.

When early in my work of testing the many thousands I have, I recognized the ignorance of color-names and lack of appreciation of colors, etc., I endeavored to work out some method of teaching which should be of avail. I became convinced that any method, to be successful and meet the necessary requirements above formulated, must be based on the principle of comparison, by which alone we get hold of the effect of color on the brain itself. I saw at once why all the means hitherto adopted and officially accepted had failed, and I readily understood why intelligent teachers had dropped them as useless, and why they were always so interested in what I had to show and say about systematic methods based on the true principle of comparison.

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I worked out mentally certain plans of instruction, and found how others had done the same. I could contrive none which satisfied me as meeting the wants which my experience in the schools called for. When I finally received from Dr. Magnus of Breslau his color-chart and method of teaching, which was awarded an honorary diploma at the International Medical Congress at Amsterdam, in 1879, I decided that he had best solved the problem. He had reached the solution through exactly the same training I had passed through; viz., continued work in testing and studying the color-sense in the schools. It has much interested me to see how this method has been spoken of by the gentlemen in Europe who were best competent to judge; viz., those who had found out from personal experience in examining the defects existing and the special needs in any color-teaching. All examiners who have written about their work agree as to the ignorance of colors and color-nomenclature, and the existence of color-blindness in the boys, not suspected heretofore, and not detected by any of the methods employed in color-teaching.

The continued attempts in Europe, only partially successful, to print colored plates to test for color-blindness have shown the great technical difficulties with all color work. Fortunately such insurmountable difficulties do not exist in reference to Dr. Magnus's chart. Still these have been such as to prevent Mr. Prang from preparing the chart up to this time. This he will soon do. With it will be an explanatory pamphlet which I have adapted to the needs and peculiar condition of our primary teachers in this country. The fundamental idea of the method is to first teach children colors, — that is, render their eye familiar with them,—and after this, the names of the colors. Thus we shall avoid their simply connecting a color-name with an object, as can a blind boy or a color-blind boy. This method of using the principle of comparison has been carefully worked over by several teachers and educators, who have kindly given me their opinions, suggestions, and criticisms, especially in reference to my explanatory pamphlet. All these fortified me in the deductions I had made from my own personal experience in many thousand tests of people of all ages and all classes.

In the use of this chart of Magnus's a color-blind boy will, sooner or later, make such characteristic mistakes as to call the teacher's attention to him, especially as these mistakes are described in the explanatory pamphlet. Thus the chart, being based on the principle of comparison, will serve the purpose of teaching colors and color-names, and the *probable* detection of color-blindness. Such teaching will be a new era, and the first commencement of systematic color-teaching. Upon it, as experience unfolds the needs and necessities, can be built up in the future the whole fabric of advanced color-teaching, and that will in the future educate the color-sense within its present power of education. Whether generations of color-teaching will finally alter the chromatic sense in males, and thereby reduce the proportion of color-blindness in that sex, it is certainly at present useless to affirm or deny. It is with no such idea that this chart is introduced into this country; and it is not brought forward with the idea of detecting color-blindness by it: it is only claimed that it is a very simple and practical method, based on the true principle of comparison, which, in practical use, will most probably, as no methods ever have, warn the teacher of a child's chromatic defect when present. With it, in every school where it is used, should be a type-set of Holmgren's worsteds and the manual adopted by the U. S. Government for medical officers of the army, navy, and marine-hospital service as to pilots. My manual I recommend because there is no other in English, and it will be invaluable to the primary or grammar teacher., or superintendent, as a book of reference. In most of the primary schools of the large cities of this country are already collections of worsteds, ribbons, paper, etc., costing much more than a type set of correct worsteds, now readily obtainable.*

This type set of worsteds will serve for the object-teaching as now conducted. A set lasted me for ten thousand examinations in the schools. All the worsteds now on hand, as also the ribbons, paper,

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*TESTING FOR COLOR-BLINDNESS.—The method of examination adopted is the one fully described in this manual, namely, Professor Holmgren's, with certain colored worsteds. This is also the test used by medical experts in detecting color-blindness amongst *railroad employés*, and the one used in the schools, and in the recent investigations of the color-sense of uncivilized tribes in various parts of the world, a mutual language not being necessary for examiner and examined.

The value of the test depends upon its being carried out strictly in accordance with Professor Holmgren's directions, given in this manual. For this purpose it is absolutely necessary to have the *correct colors and shades of worsteds*, which are not easily procured, therefore,—

At the Meeting of the American Ophthalmological Society at Newport, July 25, 1879, *it was resolved,*

"That Dr. B. Joy Jeffries be requested to make such arrangements as he may find practicable to enable the members of the Society and others to procure suitable collections of colored worsteds for testing color-blindness."

In compliance with this request the following arrangement has been made with the undersigned: They agree, on the receipt of $2.50, to send by mail, postpaid, to any address, a complete and accurate set of worsteds, including the *tests*. On the receipt of $4.50 they agree to send, postpaid, to any address, a set of the worsteds *and* the manual of Dr. Jeffries above referred to.

N. D. WHITNEY & Co.,
129 *Tremont street.* **Boston, Mass., U. S. A.**

silks, etc., can be equally well used as before; but a full type set of worsteds are sufficient for all object-teaching purposes.

In 1869, I criticised "optics and the eye," as taught at the universities.* I consulted with the professors teaching these branches, and went over the subject in the various text-books on physics. I showed the apparent utter ignorance of authors and translators as to the modern researches of such distinguished physiologists, also well-known in general science, as Helmholtz and Donders. My criticism had some effect, as I found that the Harvard students were allowed to omit the many pages of antiquated theory in "Lardner's Optics." Moreover, the late Professor Snell, at Amherst, was at the time preparing another edition of "Olmstead's College Philosophy." Desiring to have it correct and up to time in respect to the eye and optics, he came to Boston, and we went over the whole subject together. The result was his incorporating the researches of the above-mentioned physiologists, and introducing reproductions of the diagrams, etc., I used in my lectures on Optical Phenomena at Cambridge. This is not the place to discuss whether the text-books are *now* correct on the well-known points concerning the organ of vision: I merely speak of the matter to show how, year after year, the same mistakes are repeated in and taught from the text-books, till some one takes the trouble to point them out, and is persistent enough to overcome publishers *stereotyped* pecuniary considerations.

Dr. Magnus's color-chart, which I propose introducing as the simplest and most practical method for commencing primary color-teaching, is not based on any *theory* of color or color-perception. There must, however, naturally follow it color-manuals for the upper classes precisely as there has in reference to form-perception in drawing. Just what such further and higher instruction may be, and how carried out, will depend on this primary work and how far it can bring the scholar. A true foundation of color-instruction must be built up first, on which can be erected a thorough scientific and practical education in chromatics.

The first step, however, in further instruction leads us to the necessity of speaking of, deciding on, and teaching the primary colors. To help break the way for the true primaries, which science can alone admit,—viz., red, green, and violet,—I would here call attention to the fact that, still in text-books, color-charts, and even educational reports, the primaries are spoken of as red, yellow, and blue; as if Helmholtz had not, thirty years ago, showed Brewster's mistakes in experimenting. Scientific men may even think me ridiculous in introducing so settled a question here. Teachers and educators, however, realize that it is time some step was taken to clear up the text-books, and stop, at least, false instruction.

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* *Boston* Medical and Surgical Journal, Aug. 5, 1863; pp. i.–iv.

I have met, where I least expected it, such total ignorance of the fact that red, green, and violet *were* the real primaries,—so proved by science,—that, whilst to defend myself seems almost puerile, yet I must refer doubters to some standard works within their reach.

Professor Ogden M. Rood says, in his "Modern Chromatics," p. 109: "This theory of the existence of three fundamental kinds of light,—red, yellow, and blue,—is found in all except the most recent text-books in physics, and is almost universally believed by artists. Nevertheless, it will not be difficult to show that it is quite without foundation."

In von Bezold's "Theory of Color," translated by Mr. Kœhler, and published in 1876 by Mr. Prang, is, on page 128, the following: "Red, yellow, and blue were generally looked upon in former times as the fundamental colors, the results obtained by the mixture of pigments having been accepted as a basis. Later investigations lead to the conclusion that green must be substituted for yellow, and a variety of reasons might be cited, all of which speak unanimously in favor of assuming *red, green,* and *blue,* which borders closely on *violet,* to be the fundamental colors."

Another book within the reach of all teachers is Alfred M. Meyer and Charles Barnard's little manual on "Light," where the true primaries are explained. Too many of our Boston teachers have had opportunity, within the past few years, to hear Professor Cross of the Institute of Technology, in his Lowell Lectures and the Art Society Lectures, *prove* to them experimentally the true primaries, to be willing to accept and attempt to teach from any text-book red, yellow, and blue as primary colors. A reading-book was recently rejected by the Boston School Supervisors because two chapters about colors taught the old fundamental errors. Our text-books and readers must be made scientifically correct, to open a true path for the future further teaching of colors and the education of the color-sense.

THE TRAINING OF STATESMEN.

BY CHARLES F. THWING.

THAT a man should be educated for the work he purposes to do, is an obvious truth. That, therefore, if he intend to devote his life to statesmanship, he should be trained for the performance of political duties is equally clear. But the question arises, What is the character of that education which best fits one for public service? Is it general? Is it special? Is it such as the English and American statesmen have received? Is it such as they would gain in the schools of political science that are established in several American colleges?

The Englishmen who have in the last hundred years been influential in political life have, with a few exceptions, been graduates of one of their two great universities. Disraeli was not a university man, neither is John Bright. But the large majority have enjoyed a university course, throughout which a seat in Parliament has been the goal of their ambition. Many of them have stepped as naturally from a lecture-room at Oxford or Cambridge on to the floor of the House of Commons as an American graduate passes from the college to the law or the theological school. The younger Pitt soon after leaving Cambridge took his seat in the House of Commons, and after a short interval was made prime minister, at the age of twenty-five. The very year of 1806, in which Palmerston took his M.A. at St. Johns, Cambridge, he declined an election to the House of Lords as representative peer for Ireland, and entered the lower branch. Earl Russell was chosen to Parliament upon the completion of his education, at the age of twenty-one. Of the two Earls of Derby of our own time, the elder entered Parliament soon after graduation at the age of twenty-one, and the younger the very year he left Trinity College Cambridge, became a member of the House of Commons. Peel, after his course at Harrow and Oxford, took a seat in the House of Commons at the same age at which Earl Russell and the fourteenth Earl of Derby were inducted into political life. Gladstone was elected to Parliament in the year succeeding his graduation at Oxford, in 1832.

With a few exceptions, then, the only special preparation of leading English statesmen for political life has been found in the regular work of the university. Yet it is to be noted that this regular work includes not merely mathematics, classics, and other studies, as they are pursued in American colleges with a slight regard to the future of the student. Those to whom a seat in the House of Commons belonged in the family succession studied, if to study they saw fit, with the assurance that public life was as certain as the continuance of physical existence. And yet students of untitled families, as Gladstone, pursued their university careers with public life in view. They desired to enter public life. They knew, fifty years ago, that their ability and the favor of friends would open for them the doors of the House of Commons.

Thus, studies at the universities were pursued under a strong political bias. In a sense, young men read in the light of a future public life. The interest young men therefore manifested in politics was intense. The debates in the Cambridge Union were at times so hot-tempered and partisan that the University authorities interfered in the management of the association. In 1820 the vice-chancellor, though opposed to its political tendency, consented as a compromise for the club "to take into consideration public affairs of a date anterior to the century." * But the passion for the discussion of current political questions was so strong that it was found not impracticable to debate them under the guise of the past. That Catholic emancipation should have been granted in 1795, or that the English commercial policy before 1800 should have been based on the principle of free trade, were topics that invited broad methods of treatment. The English universities have, at all times of deep political interest, gathered up and sent forth strong political influences. Young men living in a political atmosphere, with a political career before them, cannot be otherwise than well-trained for the duties of statesmanship. Their preparation for public life is indeed most unlike that of Charles James Fox, of whom Trevelyan writes that "his outfit for the career of a statesman consisted in a few superficial prejudices, the offspring rather of taste than conviction; a few personal alliances which he had formed for himself, and not a few personal dislikes which he had for the most part inherited from his father." † The training of English statesmen has thus been of a general character. But it may be added, that as soon as most educated Englishmen enter the House of Commons they have given special study to the problems of government. It is not to be forgotten that Macaulay wrote in the "Edinburgh Review" for 1839, in reference to Gladstone's first book, that "we are much pleased . . . to see a grave and elaborate treatise on an important part of the philosophy of government from the pen of a young man who is rising to eminence in the House of Commons."

The training of American statesmen has been both like and unlike

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* Macaulay's Life and Letters; I., 84.

† The Early History of Charles James Fox; chapter iv.

the training of English political leaders. Several have attained not only to high official position, but also to great political influence, without special training. And yet a larger number have become prominent by means of the help of the college. John Quincy Adams was a graduate of Harvard, and was born and bred in the midst of influences which proved the best preparation for the work either of a president or of a commoner. Webster was a high-ranking student at Dartmouth, but it was eleven years after graduation that he entered Congress. Calhoun was seven years out of Yale when, in 1811, he was elected to the House of Representatives. Sumner, while at Harvard, gave special attention to literary topics, but it was not till 1845 that he actively entered into political discussion, and not till six years later that he was chosen senator. Likewise American statesmen have seldom won important political position or influence before the age of thirty, and the average age exceeds thirty-five. And, further, in pursuing their studies, few of them have had public life in view with that degree of certainty which the young Englishman of half-a-century since had the right to entertain. They could not enter the domain of public life without being elected to important offices, and an election depended not upon the will either of a single family, or of a small constituency, but on the choice of thousands of voters. As a rule, therefore, they have in college pursued general studies preparatory for a profession; hoping, perhaps, to work their way from the practice of a profession into political life. Thus the training of American statesmen has been even more general than that which the English have received.

But with the increasing complexity of the government of the United States, and with the appearance of new questions regarding taxes and tariff, it has become clear that those who are specially trained for public life are needed to conduct political affairs. The financial heresies which have taken people captive, the blunders in financial legislation of the last score of years, have arisen from an imperfect understanding of those principles concerning trade and money which educated statesmen accept. Many of the difficulties encountered in the government of either a State or a city are caused by the lack of men fitted to comprehend their nature and the methods of removing them. These facts furnish at least one reason of the prominence which colleges are giving to historical and legal studies,—studies that are specially designed to prepare those pursuing them for the public service. These facts also suggest the occasion for the establishment of schools of political science.

The first of the more important schools intended to fit young men for political life, is that connected with Columbia College of New York city, which was opened in the autumn of 1880. The second is that of the University of Michigan, established a year later. In each school the course of study covers three years, and its completion is recognized by the granting of that most honorable degree of Doctor of Philosophy. The subjects taught in each school, though stated under different names, and considered from different points of view, are in many respects similar. It is interesting to note the questions concerning which the officers of Columbia College and Michigan University believe young men preparing for public life should be specially informed. In Columbia, these questions are the following:

FIRST YEAR.

Physical and Political Geography.
Ethnography.
History of the Literature of the Political Sciences.
History of Philosophy.
General, Political, and Constitutional History of Europe and of the United States.
Special Political and Constitutional History of England and of the United States.
Political Economy: Land Tenure, Taxation, and Finance.

SECOND YEAR.

History and Institutes of the Roman Law.
Comparative Jurisprudence of the existing codes derived from the Roman Law.
Comparative Constitutional Law of the principal European States and of the United States.
Comparative Constitutional Law of the several Commonwealths of the American Union.

THIRD YEAR.

History of Diplomacy.
Public International Law.
Private International Law.
Comparative Administrative Law of the principal States of Europe and of the United States.
Comparative Administrative Law of the several Commonwealths of the American Union.
Social Science and Statistics.

The course of study in the Michigan school covers a somewhat wider field than that pursued in the Columbia:

Theories of Political Economy.
General Political History of Europe from the Renaissance to the French Revolution.
Political and Social History of England from Henry VI. to Charles I.
Political History of America before the adoption of the Constitution of the United States.
The Laws of Public Health.
The Elements of Constitutional Law.
The Science of Forestry, and its relation to National Economy.
Political History of England from Charles I. to George III.
Practical Questions in Political Economy.
General Theories of International Law.
Theories of Taxation and Public Revenue.
History of Political Forms and Political Methods.
Constitutional History of the United States.

The Political History of England from George III. to the present time.
The Management of Reformatory and Penal Institutions.
Practical Questions in Social Science.
Political Ethics.
Political Theories and Methods of the English Government.
The Constitutional History of England.
Civil Service in Europe and in the United States.
The Government of Cities.
The History of Financial Theories and Financial Methods.
The History of Political Ideas.
The History of Modern Diplomacy.

That the thorough study of these topics well fits one for public station is clear. The mental qualifications needed by a modern statesman are, in the judgment of so keen and broad a thinker as President Eliot, "the power of clear, forcible, and persuasive exposition," and the "power of debate." Especially, he remarks, is the power of exposition needed "in a republic where millions of voters have to be instructed in matters of public policy, and gross ignorance is often to be found in men in intelligent representative bodies. The statesman seldom deals with new principles or ideas: his task is to show how to treat new cases by old rules; his business is wisely to apply well-established principles under more or less novel conditions." The statesman also needs the power of debate, "the power of fairly meeting the heavy shock of a worthy opponent's argument; of parrying the keen, quick thrust of an interpolated objection; of turning against an adversary his own guns; of summoning from the reserves of a well-stored mind prompt reënforcements of fact, figure, and illustration. The strong debater, in this sense, on large subjects, is a very rare personage, remarkable not only for the power of his word, but for the amplitude of his knowledge." *

These qualities of exposition and of debate, it is to be noted, are qualities that are disciplined by the thorough study of any subject, be it history, botany, or mathematics. But, considered broadly, it is only in the special school that they can be reënforced by those stores of knowledge which are essential to their greatest usefulness. That mental discipline and that range of learning which the statesman should possess are gained preëminently in the school of political science.

Yet it is to be confessed that the school of political science meets a difficulty of serious importance. The civil offices of the United States Government are evidently of two kinds: those that are desired

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* Remarks at a public dinner given to Carl Schurz in Boston, March 23, 1881; reported in The Harvard Register, Vol. III., 257–58.

chiefly for their pecuniary reward, and those that are sought by reason of the honor they confer. The former are mainly of a clerical nature; the latter include positions in Congress and in the Cabinet. The divisions between these two sorts of offices is not precise, but it is sufficiently exact for the present purpose. For the performance of the duties of offices of either kind, the school of political science furnishes an excellent theoretical preparation,—a preparation far more adequate than many now holding high official position have received. But the fact is, that appointments and elections to those offices desired by reason of the honor they confer, depend, in a large degree, not upon specific training, but upon considerations of a character entirely different. Who has been elected to Congress chiefly on the ground of his fitness to consider public questions? Who has been appointed Secretary of State by reason of his knowledge of the relations of the American Government to other powers, or of his being learned in international law? Reasons of a scholarly character, doubtless, in all cases have influence, and in some cases great influence, but they are not ordinarily the chief reasons. Men are chosen to the House of Representatives because of the success they have won in trade or at the bar; they are selected for positions in the Cabinet either because of their past services in politics, or to maintain the "balance of power" between opposing States and sections, or for other reasons equally trivial. The schools of political science, therefore, will fail to educate men for the most honorable positions in the government, simply because these positions are filled by election and appointment; and election and appointment are chiefly determined by other reasons than intellectual fitness. The graduates of those schools cannot hope to step from the commencement platform on to the floor of Congress as the English University man of fifty years ago went from Oxford or Cambridge to the House of Commons. Yet it is not to be doubted that so far as worthy men are selected for the highest offices, those who have paid special attention to political questions will come to fill those positions.

The schools of political science, therefore, will find their principal duty in fitting candidates for subordinate offices. When the principles of the Civil Service Reform are adopted, as they undoubtedly will be, these schools will prove to be the direct preparation for minor positions in all departments of the General Government. They will thus contribute to its efficiency and permanence. It is not to be questioned, further, that the training afforded by these schools fits young men for legislative and executive duties in the States, and for various public functions in the towns and cities in which they reside.

Of what great advantage, for instance, to any legislator or governor would a course of study at Columbia College or Michigan University, on the "Transportation Question," or on "Social and Industrial Reform," prove to be? Would not the officers of any city derive benefit by reading, under a competent teacher, on "water and air supply," or on the "disposal of decomposing matter"?

Not only, however, are special schemes intended to train young men for public life established, but also many colleges are, by enlarged courses of study, fitting their graduates for political life. They are disciplining the powers of "exposition" and of "debate," and re-enforcing these powers by a wealth of learning. Political economy, a science of which most educated men thirty years since were completely ignorant, is taught in every well-equipped college and in many institutions, by most competent professors, to large and interested classes. The financial history of the United States is carefully considered in at least two of the principal colleges. General history is studied from the point of view of institutions and of law. In the remaining years of this century a larger proportion of college men may not enter political life. At the present time one-half of the members of the Senate and one-third of those of the House of Representatives have taken a degree. But it is certain that the next twenty years will be more free than the last twenty from errors in the making of laws, since the colleges are training their students in those questions which relate to the public welfare.

NORMAL SCHOOLS—WHAT THEY HAVE DONE, ETC.

BY ANNIE TOLMAN SMITH.

NORMAL SCHOOLS have reformed teaching in our country; they have not reformed education. The negative view of their work has determined the recent drift of criticism against them, which their friends have too generally attempted to rebut in kind; and thus, between unwarrantable attack and sophistical defense, the positive merits of the normals have been undervalued or ignored. We begin by admitting the truth of the assertion,—normal schools have not reformed education, — and pass to the consideration of what they undoubtedly have done.

Whether the scheme of public education in our country be, or be not, a rational one, is still a debatable question; but that the methods by which it was prosecuted prior to the establishment of normals were utterly irrational, is one of the best authenticated facts in modern social history. It is true that certain persons endeavor to conceal the fact under a cloud, or a halo (whichever you please), of personal reminiscences to the contrary. We leave such special pleading to those who love their own opinions better than they do truth, and take our stand upon the grand averages which yield general and sound conclusions.

Prior to the date of normal schools, public schools were as good in Massachusetts as elsewhere, and better in Boston than in other parts of the old Commonwealth. As early as 1838 the Committee on Primary Schools had been authorized to select one primary to serve as a model, and every applicant for a primary teachership was required to be familiar with the methods adopted in the same. Notwithstanding this shining beacon, primary education continued to be a farce in the schools of Boston for many years,—amusing, yet carrying a tragic undertone.

The little, sentient, animated child, coming thither from his mother's arms, or the ruder freedom of the street, suffered a sudden, unnatural transformation. His intellectual life, expanding hitherto by means of the ever-changing touches upon his thrilling senses, had manifested itself in boundless, tireless activity. Now he became an appendage to a certain seat, his surroundings were fixed for more than half his waking-hours, his buoyant spirits were met by the supreme mandate, "Be still." It flashed upon him from his school-dame's eyes, it startled him in her ringing voice, it threatened him in her uplifted rod. At a given signal he moved mechanically to his place in the class-row, his toes adjusted to a chalk-mark, his eyes fixed vacantly on a chart, his ears saluted with a strange jargon as his teacher called out, and he and his mates repeated in concert after her: "A, B, C; big A, little a; big B, little b"; and so on to "big and little zed."

The rite proceeding, the concert grew louder and shriller as Nature, restrained at all other points, vented her passion in a monstrous abuse of the vocal organs. A day came when the child knew all the individual symbols, and he was advanced to the permutations, and taught to conjure the muse through *a-b* and *b-a*, and, at last, it came to pass that he could read, but never as the crowning act of such a process. Somebody at home, some older child at school, some good angel in league with mother wit, had taught him words, and fitted them with meanings, and henceforth he caught ideas from the printed page, as erst, from the rapture of sense,—only now knowledge came in abstractions instead of concrete images, and his mental state was receptive instead of perceptive, and his mental action had lost a measure of force and spontaneity.

In the school the alphabetical conjurings alternated with numerical exercises whose memory moves me always to cry, "Blessed be counting." Computability is a general quality of objects which comes without the telling. The most stupid repetition of 1, 2, 3 could not cheat the child out of the consciousness that here was the expression of a familiar idea; and as oft as his lips sounded the series, you could see his small digits beating rythmic response. In vain the teacher rapped his knuckles and bade him cease the stupid habit, because Nature moved him by a mighty impulse to appropriate in the concrete what dogmatism forced upon him in the abstract.

Such was the *modus operandi* in city primaries, ere normal schools had quickened them. In the rural schools the case of juveniles was worse. "We were read and spelled twice a day," says Henry Ward Beecher, "unless something happened, which usually did happen." For the rest the little wretches were neglected, — matter indeed of small regret, if they had not been in constant danger from the inevitable consequences of such neglect. To fancy, as some would have us, an advantage in the indiscriminate mixture of ages in the old district schools, from the opportunity thus afforded younger scholars to hear the exercises of the elder, is as absurd as to imagine Jack, the Giant-Killer, in the satisfaction of a full stomach after witnessing the gormandizing of the giant.

In the grammar schools of this early date was accomplished the full expansion of the scholastic ritualism. A set of text-books signalized the child's admission at the mature age of seven or eight years and from that moment to the day of final promotion into the master's room, — a period of from four to six years, — his mind was dragged along through a ceaseless round of question and answer according to the printed letter. If it be true that "acts of intelligence have their point of departure in sensation," then the only acts of intelligence under this regimen must have resulted from getting ahead or getting a whipping. In my passage through one of the most notable of these "grammars," I never witnessed the slightest deviation from the routine, nor heard any word of elucidation, nor amplification, nor suggestion of a relation between the sayings of the book, which we repeated with Chinese accuracy, and anything in the "heavens above, or in the earth beneath, or in the waters under the earth." In the master's room, at last, ideas were presented, and by other means than verbal reiteration; but words had too long absorbed our childish energies; objects irritated and forces in action distracted us, and we proved that the second nature of habit is harder to overcome than that primal nature by virtue of which we are "the sons and daughters of light."

I hold with those who do not regard manners and morals as direct objects of school effort, but doubtless the intellect may be manipulated by processes fatal to both; and I believe that schools conducted as I have described are nurseries of bad passions and false principles, against which the combined influence of home, of Sabbath-school, and,—I had almost included,—grace itself, has doubtful advantage. If we turn to the school-history of cities which, like Boston or New York, have afforded model and precedent to the country at large, we shall observe that the characteristic of the decade (1830 to 1840) was the creation of primaries as a distinct class, and the grading of grammar schools. The methods and *personnel* which went to the service of public education were thus brought into an order available for critical examination. As the result, specific conditions were discovered sufficient to account for the failure of the schools in general to satisfy the public want.

The traditional methods of instruction were seen to be worthless when applied to children *en masse*. Women teachers, it was found, were assuming an important relation to the public welfare, but they had not adequate opportunities for preparation, nor the professional recognition essential to success.

Evidently the time for Normal or Teachers' Training Schools was fully come, and in 1839 the first of these institutions was opened at Lexington, Mass. The relation of events here indicated is confirmed by the provisions of the acts under which the earlier normal schools were established. The curriculum included the subjects taught in the common schools, certain advanced branches generally specified, and the theory and art of teaching. Women were always admitted, and a few of the schools were confined to that sex.

In this boasted scientific era it certainly behooves us to use the "scientific method" in examining our public institutions. Normal schools should be judged by their discharge of the functions assigned them. Have they sent into our common schools teachers thoroughly instructed in the elementary branches? Have they removed the stamp of ignorance from our female teachers? Above all, are their graduates skilled in the use of rational methods of discipline and instruction? The affirmative evidence is embarrassing in its abundance, whether we consider the men who have borne the testimony and who cannot be suspected of personal motives, — as President Porter and President Gilman, and the revered Barnas Sears; or the results of investigations ordered by State legislative bodies, as in New York and Maryland; or the endeavor made throughout the South, and by men naturally jealous of Northern innovations, to secure similar institutions by civil action appropriation; or the facts, more impressive still, which lie open to the observation of all who will wend their steps into a primary, a third or fourth grade, or a modernized district school.

What changes are witnessed! The word-method has supplanted *a-b ab;* in arithmetic, the concrete has taken the place of the abstract; observation is excited by forms and colors, and their reproduction in weaving, modeling, and drawing; nature is brought within the school-room in plant-forms, in cabinets of stones and shells and stuffed birds; the child's sympathy with nature is recognized and utilized in oral lessons glowing with the teacher's own thought; text-books increase the charm by their easy style and pictorial illustrations; the succession of mental exercises is broken by songs and movements; the atmosphere of love and light prevails where once was antipathy and gloom, seeing which and remembering weary primer-days of old, you think if Heaven be Heaven, but by comparison, then, here it is.

Improvement in discipline has, of course, kept pace with improvement in instruction; the rod is not abolished, but the teacher of elementary grades feels almost as much disgraced in resorting to it as the most sensitive scholar once did in its infliction. Am I speaking of exceptional schools? Exceptional only in this, that they are in charge of teachers who have had the training of normal schools;

i. e., the only ones that should be taken in this evidence. Exceptional schools, unfortunately, there are; for less than four per cent. of new teachers annually required in our public schools are normal graduates; and, although normal institutes and summer normals extend the influence of the better training far beyond the direct range of the normal proper, the great proportion of our schools are still in the gripe of empiricism and the bonds of tradition.

Normal schools have borne little fruit in morals. The reasons are obvious. Until lately two notions of moral development have prevailed. On the one hand, it has been regarded as the gift of grace, and an endeavor to produce it by natural processes would have seemed like an interference with the covenant prerogative; on the other, it has been viewed as a corollary of intellectual development, a fig on a thorn-bush. Neither of these ideas originated in the normals, which really have had something to do with exploding them. Thus, in the consideration of the problem, What is teaching, and how should it be done? attention was first directed, in the normals, to the modes of presenting subjects; gradually the mind to be affected rose into view as the most important factor in the solution, and out of this examination was evolved a clear conception of the essential distinction between intellectual acumen and moral sensibility. The idea, removed from the region of metaphysical speculation and religious enthusiasm, was formulated into a cardinal doctrine for educators, and in combination with the marvelous expansion and universal need of scientific knowledge, it has raised the question, more profound, more comprehensive than that originally addressed to normal schools, What is Education, and how shall it be accomplished?

Institutions are, of necessity, conservative. They embody forces which by persistent, and possibly desperate, effort man has reduced to orderly service; they represent triumph and repose; if they are to become the media of new ideas and new forces, it must be at the public instance. Such, apparently, is the issue which the normal schools have encountered. Everywhere the public voice is crying out, "Fit our children to live." The sound thundered first around the colleges; gradually they fell into line with the new requirements; still the agitation was not allayed, and at last it appears that a change is demanded in the ground-plan of our system in the common schools. Will the normal schools make the adjustments?

We have developed a surprising avidity for educational facts, but, curiously enough, it is for the facts which it concerns us least to know,—"unorganizable facts," from which no vital principles are deduced. While we are balancing our totals of scholars and teachers, of material and funds, against those of foreign countries, we scarcely note the degrees by which they are surpassing us in the adaptation of elementary schools to the conditions of practical life.

"As is the teacher, so is the school," is our saying; the German assents, and makes a better school by making a better teacher. France watches the process and profits by the observation, as will be seen in a comparison of the programme for French Normals, issued in 1881, with the corresponding programme for teachers' seminaries in Prussia, of date 1872. We do well to study these programmes; they represent a different conception of the teacher's preparation from that which is embodied in our training; they carry a different promise for elementary schools. They suggest an ideal of scholarship; but, better still, they define the means by which young people may be prepared for the industries which make life comfortable, for the civil obligations which make society secure, and for the normal convictions which give dignity to virtue, In comparison, our training seems too hasty, superficial, and partial. We have relieved teaching of its dullness, but, evidently, we have not developed its full power over habit and character. Is not here the grand opportunity of our normals?

I have raised a comparison as a means of indicating the direction in which the efforts of normal schools ought now to be concentrated. Let me not be understood as implying thereby any disparagement of what we have accomplished in the education of the masses.

The Prussians excel us in elaborating and formulating principles, but we need fear no comparison with them in the matter of average intelligence. With France in the lists, however, we must look well to the roots whence our laurels spring. Given Prussian philosophy with the liberty, the originality, and the zeal of the American teacher, with a school-machinery fitted as ours is for the rapid diffusion of ideas and for the equalizing of school conditions in city and country, and you have a forceful combination of the practical and ideal. Is not this the combination which the French bring to the cause of public education?

PHYSICAL TRAINING AND GYMNASTICS IN GERMANY.

BY C. KOHLRAUSCH.

[Translated by Marion Talbot.]

A PAPER on the educational value of school-games was recently presented by Mr. Koch of Brunswick, Germany, to a philological association at Halberstadt. After dwelling on the influence which games have in the development of character, and giving an account of the system in vogue in Brunswick, Mr. Koch urged the necessity of introducing into the higher grades of schools games which should be adapted to older pupils, such as English cricket and football. After a long debate the association agreed to the necessity of introducing games out of school-hours, and of gradually making them obligatory. In Berlin, Frankfort, and Darmstadt steps have been taken toward carrying on games for the public school children under the direction of instructors.

Mr. Koch speaks only of school-games, but he cannot mean to make a distinction between these and gymnastic games. Though he says in the report that the gymnastic teacher looks with an evil eye upon the introduction of games, this statement certainly rests upon a misunderstanding. A glance into any work on gymnastics would correct this error. Jahn devotes a whole section of his Gymnastics to games. He considers them an essential part of instruction in gymnastics, and says they are closely allied with gymnastic exercises, and with them form an endless chain. Without gymnastic games the art of gymnastics will not succeed. No gymnastic institution should be without a playground as well as a gymnasium. In all genuine gymnastics a world is aroused. Here work and play, seriousness and mirth, are associated. Here little children learn to uphold equity and law; here they learn custom, habits, propriety, tact. To learn to live with equals is the beginning of human greatness. Seclusion tends to egotism.

Gutsmutz, in the preface to his work on "Games for the Exercise and Recreation of Body and Mind," writes on the meaning of games, their moral, political, and pedagogical value, and their choice, classification, and peculiarities. He divides active games, which alone he considers, into first games, which cultivate observation and thoughtful judgment, and second games, which excite the dramatic sense. We would mention, further, Klosz on "Gymnastics and Sports," Wagner's "Boys' Book of Games," and Schaller on "Sports and Games."

We call to mind that a demand for games has been manifest in the pedagogics of all ages, especially among the Greeks and Romans. It is said of the convent schools, that "no matter how severe and rigid the rules were, pleasure and recreation were never entirely overlooked." There were stated holidays, during the year, when sports were carried on until late in the evening by the aid of lamplight. In their games some ran to a goal for a prize, others wrestled in pairs after their hands had been oiled, others engaged in pole-jumping, and others threw stones at each other, being protected by coats-of-mail.

Comenius likewise urges the importance of games. Jean Paul makes a distinction between schools for games and schools for learning: "in truth, if one of them must be given up, the former should be kept." He calls play the poetry of mankind, and says, "play develops all the powers without requiring any one person to gain the mastery. Where, except among his equals, can a child show and develop power, resistance, forgiveness, generosity, kindness, — in short, all the attributes of fellowship?" Schleiermacher asserts that children learn from games to use and govern all their powers; that they in that way acquire the greatest good, and are in the least danger of becoming immoderately fond of pleasures, or lazy and idle, or even immoral. Kleinschmidt, in his essay on the "Spiritual Development of Youth," desires that opportunity should be given for the free movement of the body, and for practice in self-control, decision, and courage.

Since the need of games for the young has been so often felt and expressed, it seems strange that they should nevertheless go out of use. We will proceed, first, to give the reasons therefor in order, after a thorough understanding of the evil, to find a remedy.

Some years ago, when there was a universal complaint concerning the slackness of schools, institutions of learning were subject to the reproach that, because of the tendency of the age, they allowed intellectual education with a view to money-making to become so prominent that the physical development of the young was interfered with and even endangered. The charge was brought against the schools, that they allowed no time for mental recreation and invigoration, forgot the fundamental principle of all education,—*mens sana in corpore sano*,—and thereby lost sight of their aim, the harmonious development of the whole individual. These and other charges gave rise to long and serious observations, conferences, and experiments in the educational world. Although the school-duties demanded the full strength of the pupils, the complaints which had been started were justified only partially here and there. Restriction and more precise limitation of the tasks were actually made where they were needed, and the scholars were consequently somewhat relieved. Larger play-rooms and time for physical development were granted, and the complaints of over-crowding were quieted.

Greater freshness and animation, renewed strength, and lively interest in intellectual work had been looked for as the result of this change. Experience shows that when the lessons are shortened the mental activity is either not increased at all, or not in the expected ratio. On second thought this result does not seem strange, for the matter is not helped by granting time alone. The schools should not rest satisfied with this, for physical education has always been an integral part of their task.

In school, physical education is given principally through gymnastics ; accordingly the demand is reasonable that such instruction should give proper heed to bodily welfare. It should be required to give to the nerves and organs of sense and understanding, after mental exertion, nourishment sufficient to invigorate them. The means to be employed are physical exercise, free exercise of the blood, and healthy sleep. When no improvement is attained in spite of all the care devoted to mental training, it is natural to reproach gymnastics, the instrument of physical education, with not efficiently accomplishing its task, so that a lack of mental elasticity arises. This reproach is quite one-sided, since, without going to the root of the evil, it makes the method of Spiesz responsible for the deficiency. This method of gymnastics is universally condemned for having banished active, cheerful exercise, vivacity, and especially children's games. Schaller says, "no scholar need be ashamed to confess that gymnastics, as usually conducted, is wearisome," This charge is taken to be an established fact, in the report mentioned. Before admitting it, let us inquire what has been done for gymnastics in schools in order to recall some enactments which are still observed in many places. We may be excused for beginning with Prussia.

It cannot be denied that a great deal of attention has been devoted to instruction in gymnastics during the last twenty years in Prussia, so that it is now included in educational schemes like other objects of instruction. A ministerial enactment of Sept. 10, 1860, designates it as an integral part of school-work. A decree of April 7, 1866, requires instruction in gymnastics to be given in classes; another of April 14, 1866, requires that in case the instruction is not given by a regular teacher, the special instructor shall be one of the board of teachers, and shall take part in their conferences. On January 10, 1867, it was decreed that school directors should not in the future ex cuse the graduating class from gymnastics, and should regularly express their opinion of the work accomplished by the class, not only in the reports of the term examinations, but on the diplomas. If these enactments are not complied with everywhere at present, it is a sure sign that directors and other officials are not convinced of the importance of this disciplinary instruction.

This is not the place to compare the merits of the systems of Spiesz and of Jahn. Honor to Jahn! But Spiesz can speak of the evils of that system, the indifference shown in the attendance, the lack of regular instruction, etc. In this connection we will refer to what Spiesz himself says: "It is important that regular and definite exercise should also make the scholars happy and merry. Play should be exchanged for social exercises, and exercises for games, in which the regulations should be strictly obeyed. Time, dance, and song are closely united in the exercises. Different games, bathing, swimming, and skating are taught." Spiesz requires instruction to be given in the lowest classes, and recommends the introduction of gymnastics into the advanced classes of high schools and academies. The exercises should be graded and extended according to the classes Exercises in marching and carrying the body will prepare the scholars for military service. Waszmannsdorf says, concerning the variety of exercises contrived by Spiesz, "there are no new ones." In such a system can there be a lack of change, gayety, variation, or mental and physical activity? If a pupil were indifferent to such gymnastics, would not every one look on him with scorn, notwithstanding Schaller's remark? If any fault is to be found with gymnastics, it is that the recommendations of Spiesz are but half followed.

We think the charges against the method of Spiesz are sufficiently answered. Where they are just, where a so-called follower of Spiesz does not succeed in carrying on a class of forty pupils in general gymnastics, as was formerly done, then by all means we should go back to the good old ways. They indeed are still too much in vogue for any complaints to be heard of the ravages of time. Gymnastics is no more responsible for the apathy of the young than is overcrowding. The cause lies rather in the present tendency to refinement and luxury and in wrong domestic training. Only when healthfulness,—the third factor which is necessary,—is secured in both, will the desired results be obtained from greater attention to gymnastic instruction.

The milliards of 1870–71 opened the way for materialism and egoism. Money-making is now the watchword of every school-boy, even before he has learned to do any work for which he can expect remuneration. It is the desire of every one to make money, but only in order to secure all the enjoyments of life. Every means is used to attain this end. So-called worldly wisdom, carried to cunning, wantonness, and deceit, is one of the chief means, and, moreover, frequently appears under the mantle of propriety. On the contrary, honorable work is held in disrepute. "Work is for the stupid" are some of those winged words which the crude cynics of to-day utter. Nobody is worthy of envy except the one who can procure costly pleasures. So much is commonly sacrificed to a show of wealth, which is reputed to be necessary, that the most sacred duties are neglected in consequence. People live "in great style," as they like to say. The training of children is left to ignorant and immoral servants, and in this way the prosperity of the family is injured.

When a wrong example is set before children at home, there results a bad influence upon the schools. There is not only no time for judicious care and training, but the injurious customs of the age force children into a whirlpool of pleasures and enjoyments. There are parties and balls and dances. Much more harm is done by the sweetmeats, highly-seasoned viands, and spirituous liquors, which are considered necessary on such occasions, than appears at first sight. The nervous system and all the organs of the body become paralyzed and benumbed. Children, especially in the higher schools, are frequently injured by too much as well as too good food. Professor Bock says, "Too much good food is as detrimental as too little." The result is that the changes taking place in the organism have to be assisted by means of wines, spices, or even medicines. This is the more unfortunate, as the process of renovation is constantly going on in the organs during youth. But, moreover, it is evident that these customs excite the imagination of children disproportionately, and consequently occasion mischief and harm. If a child happens to remain innocent and natural, it is injured by what it sees on the street, by attendance on the theatre, or by harmful reading. The present mode of dress is merely the result of style and fashion. Think of the patent-leather shoes and the high heels, which are alone enough to prevent vigorous movement! Boys, as well as girls, are unable to tread firmly without injuring their shoes or turning their ankles. It is no longer considered proper for them to run. They appear like mere dolls on the street and at the dancing-lessons, or else carry themselves like old people. They know and understand everything, consequently they have every liberty, and do not consider it necessary to work. Elegant little gentlemen, who can only be touched with kid-gloves, are made out of boys originally strong and hearty. It is not strange that when they are accustomed to such pretentious effeminacy they can show no energy, and only half understand how to work. Here is the ground of all complaints; here, too, must the lever of reform be applied.

So long as no change takes place in this method of training the young, a diminution of work will have as little influence as the introduction of games in securing the desired mental vigor and alacrity for work. Even the least labor will continue to be hard and the best game tiresome. Accordingly all compulsory means should tend to make the entire mode of living natural. The directors of health and morals, the homes and the schools must do their part. Fathers and mothers must devote themselves more to their families, and to the fulfilment of their obligations to their children. An end must be put to pleasure-visits, parties, and the like, and, instead, children must be taught useful occupatious, and learn how to work earnestly. Their reading especially should be directed. They should be kept away from theatres, and everything else which would make them old before their time. They should not be allowed to hear the mischievous talk of servants. An example in frugality and industry should be set by parents to children, by masters to servants, by superiors to inferiors, and by teachers to scholars. Children should be taught obedience, respect, and genuine religiousness. Let no one object that the schools cannot and should not be troubled with such things, and plead that there are no ways and means to influence training out of school to such an extent. The school has more power in this respect than appears at the first glance,—the higher schools especially.

Goethe says, "Of all human activities there is no factor which has so great and abiding an influence in the realm of education as the family, when it is properly brought in play." In domestic training the greatest attention must be paid to the diet of the child. Professor Bock says, "he only can be intelligent whose organs of intelligence are sound," If a well-regulated and highly-developed spiritual activity is desired, the brain with the nerves and organs of sense must, above all things, be in the soundest condition. This implies the absolute necessity of nourishing these organs naturally. For this purpose a proper amount of good blood, in free, undisturbed circulation, is necessary. This is to be acquired and retained, in the first place, by means of rational nourishment. In most cases it will suffice to call the parents' attention to its influence upon the mental life; the family doctor may do the rest. A little instruction on this point might also be possible through the public press, societies, etc.

The scholars in the upper classes should be thoroughly instructed in the most important rules of dietetics. Not until then will they understand and heed admonitions in regard to temperance and modesty. Our youths are not quite so bad, but that some of them, indeed most of them, feel the influence of increased knowledge. Instruction in regard to clothes and their adaptability may be left to the teacher of gymnastics. He has frequent opportunity to call the pupils' attention to the unsightly appearance of his clothes, as well as their interference with his motions. If the teacher is persevering enough, and pleasant and earnest in giving counsel, he will certainly be successful. The pupil himself will express his wishes to his parents, and the tight, stilt-like boots, scant trousers, window-glass lorgnette, lead-pencil cane, and the like, will disappear. Pleasure will be found once more in walking, running, jumping, and working.

Now let the schools do their part. First, they should not receive very young pupils. Professor Bock says, that if the brain is forced to do mental work before it is well developed and strengthened, — that is, before the seventh or eighth year, — it is rendered less active during after-life, and a tendency to convulsions is frequently produced. But when the scholar once enters school, he should learn to work. He should understand that learning is work, and that he is, in school as well as in the world, to work. Proper exercise for the intellectual organs comes next to diet. When children are healthy, and have learned to work and to keep themselves occupied, it will not be necessary for the school to keep them constantly at their tasks. There will be both time and opportunity for physical and mental recreation. There should be longer pauses between the lessons than formerly, giving a chance for physical exercise. It does not make a pleasant impression upon one who is fond of children to see a troop of them remaining quiet and stupid between the lessons, or shambling about as if they had lost all their vitality, instead of running about freely and happily. On the other hand, it is painful to see children rushing out like wild beasts, shouting, screaming, and coming to blows. The golden mean is right here, as everywhere else. Children should enjoy themselves to the full. After sitting still, they want to run, jump, sing, shout, and even tease each other; and they should not be prevented. Even a blow, if not given angrily or maliciously, hurts nobody.

Active games are of most value when undertaken by classes. We mean the lower classes, for the upper classes may take their exercise properly, but according to their inclination. In order to lose no time, the game should be decided upon before the class goes out, and the choice made known by writing on the board. The apparatus for games must be produced without loss of time, and the boundaries of the playground must be fixed. It is of course taken for granted that the scholars understand the games. The tutors should be so familiar with the rules of the games that they can act as umpires if necessary. The hours for exercise should come between the other lessons. There is no need of proving that, after sitting for several hours, it is beneficial to the body, and especially to the brain and nervous system, to stretch the limbs and take active exercise, and thus set the blood into free circulation.

The younger classes must have all their afternoons free, and the middle classes as far as possible. More is required of the older pupils, yet their afternoons should not all be occupied. It is better to begin an hour earlier in the day. If the system of Spiesz be introduced, his directions should be followed. If the instruction in gymnastics is given in classes, as Spiesz desired, the exercises should be divided and graded as he directed. But the time is not given to the exercises which he considered necessary to secure the desired result. He requires a child to practise an hour daily throughout the year, or at least four hours a week. We are satisfied with two; and sometimes in winter the exercises are wholly abandoned. Accordingly the most zealous and skillful instructor cannot attain the success anticipated by Spiesz. If the attempt is made to overcome this deficiency by unusual and severe pressure during the hours for exercise, it is not strange that the scholars lose their interest and enjoyment in gymnastics. There has been a prejudice against games because of the erroneous idea that Spiesz considered a playground superfluous or unnecessary with a gymnasium. The opposite is true. The gymnasium, however necessary it may be, is still only a make-shift for cold and wet weather; at all events, no school should be without a large playground, and where there is such a place for general exercise near the school, it is inexcusable not to use it for classes in gymnastics. Gymnastic exercises, as well as games, may be enlivened by songs. Those given out by the singing-teacher need to be practised; accordingly the instructors in gymnastics and singing should consult together. Popular and patriotic songs, especially the latter, are suited to gymnastic exercises.

Excuses from gymnastics should not be granted as much as is customary. We recall a ministerial decree of January 10, 1867, in which the directors were instructed "to insist with the greatest possible severity on the participation of the scholars in the gymnastic exercises, and to grant excuses only in cases where certificates from careful and conscientious physicians state that the exercise would be decidedly harmful. If such certificates are misused, the intervention of the royal district physician will be of service." On this account, especially, we wish that schools could require a certificate from a district physician, for frequently nothing is easier than to get a certificate from the family doctor, which results in an excuse from gymnastics. Perhaps the whole trouble arises from a feeling of variance between the scholars and the instructor, or from the slackness and idleness of the pupils. The certificate should state the complaint exactly, and mention in detail the kinds of exercise which should be expressly avoided. The question of excusing the pupils should then be left to the master for decision. Scholars who are weak, or only temporarily prevented from taking exercise, should not be excused altogether, but should be required to be present at the exercise.

The diploma for gymnastics acquires a higher value from the fact that, in order to secure a certificate granting the right to take military service for one year only, the applicant must prove that he has taken a regular course in physical training, of which the certificate must give a complete report. Those who possess these diplomas are favored in being obliged to devote only one year of their life to the State, whereas others must sacrifice three years of their strength to military service. This is only right when the one who enters the army for a one year's term has already had physical training.

In the hot season a course in bathing and swimming should be instituted in every school; for, besides making a good stock of blood, it must be kept pure, which, after sound breathing and suitable exercise, is best done by constant care of the skin. Hufeland says, "the skin is the greatest medium for purifying our bodies. It is likewise a grand means for preserving an equilibrium in the powers and motion of our bodies. The more active and open the skin is, the more secure will people be against obstructions and diseases of the lungs, intestines, and lower stomach, and the less tendency will they have to gastric fevers, gout, asthma, catarrh, etc. One great cause of these disorders being at present so common amongst us is, that we no longer endeavor to strengthen and cleanse the skin by bathing and other means." Mr. Klosz writes, in the year 1861, that of 120,000 inhabitants in Dresden, hardly two thousand could be counted who bathed, in spite of the splendid river Elbe. This is true to-day of Dresden, and other places are still worse. There is a pressing need of reform. The muscles of the arms, feet, and chest are well exercised in swimming, and this exercise is of special importance for growing children, and those who are engaged in sedentary pursuits, on account of its tendency to broaden the chest.

In winter, schools should give time and encouragement to skating. The teacher of gymnastics, to whose department it belongs, would thereby gain the love and gratitude of his scholars, and the exercise in the fresh, pure air would be a great blessing to them. Mr. Klosz says of skating, that it is an exercise as useful as it is popular; not only promoting muscular strength, but agility, courage, and an agreeable bearing.

Suitable excursions or rambles may be made at all times. The temperate seasons are especially adapted to sports. Everybody has seen children, on sunny days in spring, running and jumping with genuine delight. In the autumn they do not wait to be urged, but go out in troops to fly kites and engage in other sports. If children have time and a good playground, and still do not play, it is for the interest of the school to appoint regular hours for exercise, and give instruction in suitable games. Healthy children will not then stand upon ceremony. It is sufficient to lay down universal rules in relation to play-hours. Of course, in warm weather the late afternoon hours should be chosen for out-of-door games, and in cold weather the earlier hours. The choice and division of the different games should be left to the instructor.

We must not pass by the fact that these requirements unite to make a heavy task for the teacher, but it is also a most grateful one. What hearty intercourse there must be between scholars and the teacher, who is with them everywhere, oversees their games, and takes part in their pleasures and occupations! Above all things, the teacher must not act the part of a police-officer, nor be a bungler in the games, but must join in them and be more skillful than the children if possible. There is no fear that authority, the nimbus of a teacher, will disappear; on the contrary, according to our experience, scholars feel honored when their teacher associates with them, and manifest affection and good-will for him.

Before closing we must reply to two objections which are held by most people who do not concern themselves much about gymnastics. In the first place, they take it for granted that children acquire rude, rough manners through physical development. The reverse is true. The instructor in gymnastics who is well-trained does not have recourse to wrestling and fighting, because he has other means for exercising the physical powers of his pupils. Development of strength, self-control, sense of order, discipline, courage, are the great aims of gymnastics whereby it strives to increase the power of self-defense. It seeks to promote valor, unity, and genuine morality by means of bodily exercise. The opinion is equally false that gymnastics makes children foolhardy and rash. The one who is not trained in gymnastics is in danger of expecting what is impossible from his strength, because he has no sure measure of it. Then, again, he may be overcome by fear when a practised and careful gymnast of similar strength could exercise self-control, and perhaps escape from a threatened danger.

Let no one be astonished, that before promising the best results from the introduction of gymnastics, we make so many stipulations and require in particular that the family and all the surroundings of children should be of a helpful character. We would be glad to assert that the best results follow from gymnastics, were we not afraid that, in case of failure, complaint would be made against this department of instruction alone. The school should leave no means untried, the State should shrink from no sacrifice, — the reward, the welfare of our youth and their future, is worth the trouble.

THE UNCONSCIOUS IN EDUCATION.

BY JOHN EDWARD MAUDE.

THE German schools of modern philosophy have worked out some wonderful results, but perhaps the most wonderful and the most useful result of them all, especially to the science and the art of education, is the philosophy of the unconscious. It has been shown beyond the possibility of doubt that the human mind does far more work unconsciously than consciously, and that discovery ought to furnish great lessons for the use of educators. Emerson complains, "In a hundred years, millions of men, and not a hundred lines of poetry, not a theory of philosophy that offers a solution of the great problems, not an art of education that fulfills the conditions."

But the philosophy of the unconscious ought to have furnished some lessons that might lead to the true art of education. The substantial truth of that philosophy, so far as it applies to the analysis of mind, has not been doubted. All psychologists agree, and must agree, that the human mind does most of its work unconsciously. It is admitted that, not only in reflex action, but in the highest thinking of men, the mind acts in very large part unconsciously. Why has not this truth been the mother of a new art of education, or at least of some new method of education? If the mind does much more work unconsciously than consciously, our educators should surely use that fact in their work.

Every one knows that the mind is conscious of only one idea at a time: the idea that at each present moment is before consciousness. Not only does the mind learn much unconsciously, but even what it has taken great pains to learn consciously lies in the mind, but not in or before consciousness. Mind is the whole, of which consciousness is a part; the mind is a vast hall, which contains myriads of ideas, and consciousness is a small mirror in that hall before which those ideas may be made to pass, one at a time. Our knowledge is mainly potential, not actual; we can be conscious of a certain idea if we will to be, but actually are not conscious of it unless some occurrence excites the nervous tract which is its physical correlate. I am unconscious of every idea that I know except the one which I am now writing down; even the process by which my thoughts are, one after the other, translated into marks upon the paper is an unconscious one, though that process was once, perhaps, a painfully conscious one. The brain process which moves my finger, or any other part of my body, is an entirely unconscious process. I literally do not know how to move my finger, and yet I can and do always move it as I will. This is true of every act of the body that I consciously perform. I consciously will the act, but do it I know not how; I am conscious of the end I have in view, but unconscious of the means of reaching it. Besides these acts in which we are conscious of the end, there are human actions in which we are conscious of neither the means nor the end, as reflex actions, the actions of the heart, viscera, and all the vital organs. Some physiologists try to prove that these, too, are actions of which the race, or its ancestors, were originally conscious, but which have become unconscious by habit through constant repetition. Moreover, as all these actions are actions for a definite purpose, and are performed intelligently, with perfect adaptation of means to end for the accomplishment of that purpose, there is an intelligence ruling them, and an idea, of which we are unconscious, of the end and the means. All action for a purpose involves the presence of an unconscious idea, and there must be present in all unconscious action for a purpose an unconscious idea as its guide. Purpose is the mental element of action; wherever purpose appears, there must be mind.

But my purpose is not to prove or discuss the philosophy of the unconscious. I aim only to apply that philosophy to the business of education; and for a full discussion of its principles, with abundant illustration and proof of them, refer the inquirer especially to the works of Hartmann, the German author of the "Philosophy of the Unconscious." We shall now take much of the philosophy of the unconscious for granted, and discuss it only so far as will be necessary to illustrate our meaning. Our object is to discover, if possible, what the proper work of the educator is, — to learn if he is doing it properly, and to discover the true application of the knowledge that we now have of the unconscious powers of mind to the art of education.

The work of the teacher can be divided into two parts: instruction and education. Instruction is the conveyance of ideas into the mind from without, which the mind has no means of acquiring without such instruction; while education is the "leading out" of ideas which are already unconsciously held by the mind, into the presence of consciousness. Instruction draws its materials from without, education from within, the mind. Instruction brings ideas which may or may not be true, and which might have been different; education brings before the consciousness ideas which must, from the nature of mind itself, be true, as well as ideas which instruction furnishes. Instruction does its duty when it conveys ideas into the mind, whether or not those ideas ever find, and penetrate into, the small inner sanctuary, the holy of holies, called consciousness; education, from the very nature of its task, has to bring ideas from the outer courts of the mind into the aditum of consciousness. Thus it appears that instruction has but to implant ideas in the mind, while education has to take those ideas after they have been implanted in the mind by instruction, and all other ideas, including those called "innate ideas," and present them to consciousness. Instruction has to bring into the mind empirically a vast mass of ideas from without; education has to bring both the empirical and the *a priori* ideas before consciousness from within the mind itself. The work of instruction is great in quantity, extensive; the work of education is fine in quality, intensive. Instruction carries in as large a quantity of facts as possible; education arranges those facts, chooses the essential ones, finds their laws and relations to each other.

We do not need to bother ourselves here about the discussion concerning innate or *a priori* ideas. Education has to present to consciousness both *a posteriori* or empirical, and *a priori* or innate, ideas; in either case education develops powers or knowledge already possessed by mind, no matter how those powers or that knowledge were acquired. The business of education is with consciousness, and its duty is to discipline the individual by presenting ideas to his consciousness that he may see them, their laws, and their relations. Whether there is a difference in kind, or only in degree, between the ideas that the mind possesses does not here concern us. We only care to say that there are some ideas,—such as that two and two make four, that two straight lines do not inclose space, that virtue is better than vice,—which we seem to remember rather than learn, and which men therefore call "innate ideas." Between such ideas as these and empirical ideas,—such as that Canton is in China, that the French Revolution occurred in 1789, or that Jesus Christ was born 1886 years ago,—there seems to be such a vast difference that, even if it really were but a difference of degree, it is only conceivable by us as a difference in kind. Education only develops, or makes us con-conscious of ideas that we already have in our minds, whether those ideas be innate, or were acquired empirically; while we cannot conceive of instruction teaching us the so-called *a priori* truths of mathematics, or ethics, or physics. Instruction furnishes material; education seems rather to furnish form. Instruction may, or may not, bring ideas before consciousness, though its proper work is finished when it has conveyed ideas into the mind, whether the mind be conscious of them or not; education must present ideas to consciousness.

After education has presented ideas to consciousness, those ideas fall back into unconsciousness. Consciousness sees but one idea at a time, and is conscious of that idea only for the present moment. All other ideas but the one present to consciousness are held by the unconscious powers of mind. The process of the education of the human mind seems, therefore, to be: First, the acquisition by the mind of a quantity of ideas, which it holds unconsciously in waiting for consciousness to choose from the mass the particular ideas that it has interest in; the greater the mass of ideas, therefore, held in unconsciousness, the greater will be the quantity of material that consciousness has to choose from and work with. Secondly, presentation to consciousness, by the process of education, of ideas out of the mass held in the mind unconsciously. Thirdly, relapse of those ideas into unconsciousness, to be again held in waiting for the call of consciousness.

It appears from this that education, in the broad or generic sense of the term, includes instruction, for the first of these three steps is what we call instruction. Instruction which persists in carrying its load of ideas not only into the mind, but into the presence of consciousness, is possible, but exceeds its proper office. The proper process is, as we have described it, a process of three steps, of which the first one, instruction, leads no farther than to the unconscious courts of mind, leaving to education the presentation of those ideas to consciousness. New ideas, or ideas which the mind has never before acquired, should not usually be brought from without directly into consciousness; they should usually be allowed to grow old in the mind, to be digested and assimilated with other ideas in the mind until consciousness gets an interest in them, and calls them before it. This is the natural process of education, though, as we shall see, our present system does not use it.

It also appears from our analysis of the process of education, that education has to present to consciousness either ideas that have never before been before consciousness,—that is, ideas that have been acquired by the first step, by instruction; and ideas that have already been before consciousness and have fallen into unconsciousness again by the third step,—that is, it has to present remembered ideas to consciousness. Instruction has nothing to do with remembered ideas.

This process of education consists, therefore, of drawing ideas into the presence of consciousness, and then allowing those ideas to fall back into unconsciousness again. There are, therefore, two kinds of ideas held by the mind unconsciously: the ideas acquired by instruction, but which have never been before consciousness; and the ideas which have been before consciousness, but have fallen back into unconsciousness. Precisely what the difference is between the two kinds cannot be stated in few words. We are said to have learned the latter kind, and are commonly believed not to have learned the former kind. We can recall or remember the latter kind, and we therefore count it as part of our knowledge; while many of the first of the two kinds of ideas may never be brought before our consciousness. We may here conceive of four kinds of ideas in relation to our minds:

1. Ideas which have never been brought into our minds in any way.
2. Ideas which have been brought into our minds, but have never come to consciousness.
3. Ideas which are before consciousness.
4. Ideas which have been before consciousness, but have relapsed into unconsciousness.

This fourth class might be divided into two sub-classes:

a. Ideas which can be recalled to consciousness.

b. Ideas which cannot, under ordinary circumstances, be recalled, and are therefore said to be forgotten.

Ideas which can under *no* circumstances be recalled probably do not exist. Sub-class *a* forms our stock of ordinary working knowledge, and the only stock we have, according to the common notion. But it is probable, as will be repeated hereafter, that all these classes of ideas, except Class 1, are factors in our thinking, and do their part to define the particular way in which, out of an infinite number of possible ways, our minds are to think.

The development of man, both of the race and of the individual, by civilization and by the education of the school-room, is in the direction of increasing the realm of consciousness. The civilized man is far more conscious than the savage, both extensively and intensively. The educated man is likewise more conscious than the ignorant peasant. But the process of development does not increase what man is actually conscious of, so much as what he *can* be conscious of; it is not Class 3 that is enlarged so much as Class 4. Civilization and education both serve to bring up ideas from Class 1 to Class 4; to increase the number of ideas that *have been* before consciousness. All ideas that ever have been before consciousness are part of the knowledge of the individual, and serve as part of his education. The object of man's development is, then, to increase Class 2 relatively to Class 1; to increase Classes 3 and 4 relatively to Class 2. That is, of the two kinds of unconscious ideas in the mind, previously mentioned (those which have, and those which have not, been before consciousness), the object is to increase the second relatively to the first. This has probably been the process of development of our consciousness of the movements of our body. At first those movements were performed at random, until habit taught us how to perform consciously the right action for our purpose. We learned how with pain and difficulty; and, while learning, were conscious of performing the motions. Then the frequent performance of the motions begot habit, which finally enabled us to perform the motions unconsciously. Probably the proper motions of all our vital organs followed such a process, and we may once have been conscious of performing the motions of the heart and other vital organs. We may even yet be conscious of the motions of breathing, which seem to be yet in an intermediate stage of development. A complete history of this progress from conscious to unconscious action is seen in the piano-player, who, with difficulty, learns to perform consciously each separate movement of the fingers, but with fully-acquired skill, is able to perform all these motions unconsciously, and to thus give attention to other and higher matters. The object of education seems to be, therefore, to increase the possibilities, the potences of consciousness, rather than its actuality; to transfer ideas from the first of the two classes of unconscious ideas heretofore mentioned to the second. And the length of the process seems to be proportioned, in some sort, to the state of development of the species: a chicken can walk as soon as it leaves the egg, while a human child can only walk after long practice, during which it is conscious of every step it takes, and only gradually loses that consciousness.

The importance of these facts to the science or art of education is of the very highest kind. Our unconscious ideas are only made consciousin order that they may sink back again into unconsciousness. The process begins and ends in states of unconsciousness which are long, while there is but one short state of consciousness in the whole process. The conscious part of our minds may, therefore, be compared to that point on a large wheel which touches a tangent, while all the rest of the wheel may represent the unconscious part. Every point on the periphery of the wheel may be made to touch the tangent, but only one point ever does touch it at any one time. The work of instruction is to enlarge the wheel; the work of education is to so fashion it that as much as possible may be brought to the periphery, and thus be made capable of touching the tangent.

We ought now to have learned at least two things: First, that education and instruction are, when compared with each other, distinct processes; Second, that instruction should not busy itself with trying to bring its knowledge directly into consciousness, since that attempt is an unnatural and most wasteful process. Instruction has to furnish the mind with ideas; education has to bring from unconsciousness into consciousness:

First: Innate ideas, if there are such.

Second: Ideas acquired empirically, and not yet brought to consciousness.

Third: Ideas that have once been before consciousness, and which, when brought again before consciousness, are said to be remembered.

In this account we have taken it for granted that there are two ways of acquiring ideas by instruction: 1. Unconsciously; 2. Consciously.

These two methods of instruction are methods of getting empirical ideas into the mind. All ideas of experience,—such as the facts of history, the physical sciences, except, perhaps, the so-called *a priori* principles at the bases of those sciences, the ideas and facts of every-day life which form our experience of men and things,—must be acquired by instruction, by drawing in that which was out of the mind; as education is a process of leading out to consciousness that which was already in the mind. In both education and instruction it will be noticed that the process is attraction, not propulsion,—a pull, not a push. In instruction it is the pupil who "draws in"; while in education it is the teacher who "leads out." A pushing or cramming process is, in both cases, out of place. The teacher who aims to push what he desires to teach straight up through the mind directly into the presence of consciousness, does not use a natural process, and spends vast labor in vain.

All that an instructor can do is to present facts in many varied forms, to arouse in the pupil's mind an interest in those facts, and allow him to draw them in. Persistent pressure of those facts against the mind will force the pupil to take them into his consciousness, but a natural process of acquisition allows new knowledge to remain awhile in the outer courts before being admitted to the presence of consciousness.

That the mind does acquire most of its knowledge unconsciously can be seen by a little reflection on the ways in which all our experience has been acquired. The beginning of our acquisitions in childhood is certainly unconscious. A child is led time after time over the streets about its home, and it soon learns to find the way alone. When and how that knowledge of geography was acquired the child does not know. And that method of unconsciously acquiring a knowledge of places can be illustrated from the experience of each one of us. How many times we say, "I cannot tell you how to get there, but I could find the way myself!" So we unconsciously mark the characteristics of men and things,—that is, we unconsciously get knowledge of men and things. If a man be asked to describe the appearance of a person whom he has seen, he may be entirely unable to do it. I have often been asked if such a person had a black or a light moustache, a black or a brown hat, a frock or a sack coat, a dark or a light complexion, black or gray eyes; and, though I knew the person well, have been unable to answer such questions about him. Not long ago I asked a man if his father had a moustache, and he could not tell me. But I need not say that a change in any of these features by which we recognize persons that we have met, would be instantly noticed when we met them again. On meeting a friend, after a long absence, how often do we say, "There is something changed in you,—what is it?" And only after comparison with our remembrance of the person as he used to appear, are we able to tell just what the change is. In these cases we have acquired an unconscious idea of the person, but are unable easily to call that idea into consciousness. We do not notice consciously most of the more familiar things about us. We seldom consciously think how our house is painted, what the shade of it is, what the pattern of our furniture is, or whether the door opens to the right or the left, out or in. But how quickly should we notice a change in any of these things? Think of the door that you have most often opened, and tell, if you can, whether it opens to the right or to the left, out or in. Yet, when you open the door, you never put your hand on the wrong side to find the latch, nor try to push it when you know that it opens with a pull.

It is in the unconscious way in which we acquired a knowledge of such every-day matters as these that we acquire by far the greater part of our empirical knowledge. What is the precise characteristic in your friend's step that enables you to recognize it when he is coming? Did you ever consciously think the idea, "If I run into a solid piece of matter I shall get hurt, or be hindered in my progress," and do you avoid running into obstacles because you ever consciously acquired and thought that idea? A child sees its parents and friends take a key to unlock a door, push the latch to raise the window, push or pull things to get them into certain places, and the child performs those actions without ever knowing how it learned them. Sometimes, as in the cases just cited, knowledge thus unconsciously acquired remains unconscious, and its possessor is unable to think it consciously; but sometimes knowledge thus unconsciously acquired reaches consciousness, and its possessor can tell you how to unlock a door or raise a window, though he himself acquired that knowledge unconsciously.

The results of this unconscious acquisition are seen in the empirical characters of us all. A child born and bred in a good family acquires the good breeding that characterizes him without being conscious of the acquisition. He meets boys who were bred in other circumstances, and sees the contrast between himself and them, but the boys were not conscious of acquiring the manners of both action and thought which produced that contrast.

The manner in which we acquire language, including facility in its use and style of expression, is perhaps the most striking instance of unconscious acquisition. A few words may be acquired by imitation, as by noticing the articles that others call chair, table, house, etc.; but the vast majority of our words, including all but a few nouns, and all words of the other parts of speech, must be acquired unconsciously. Who taught you the meaning of "now," "almost," "already," "virtue," "to be," "to do," and the rest?

The varieties of expression and style are almost as numerous as words, and each person has his own. The use of phrases and expressions, both in speech and in writing, so as to express our exact meaning, is learned unconsciously. I cannot tell when I learned the precise meaning attached to the different ways of saying, "*I* am coming," I *am* coming," and "I am *coming*." All the various uses of inflection and emphasis in language are acquired unconsciously. How natural and easy such unconscious acquisition is, can be seen very plainly by the light of these illustrations. The barefoot boy makes this unconscious acquisition without effort of any kind; it is only when he is put into school and obliged to learn consciously that effort and difficulty come.

So, likewise, do even the most accomplished authors acquire their ability to convey their meaning. Every phrase of a good author might be put in a hundred different ways, and mean almost the same thing. But only the author's own expression will mean quite what he meant to say, and yet he did not consciously choose just that expression rather than any other: the words that fitted his thought came at his bidding, but how, he cannot tell. Why we use this form of expression or manner to one person, and that form to another, we cannot say; but we unconsciously got the idea that this, and not that, was the form we ought to use. A person with ability to exactly suit his words and actions to the character of the person with whom he deals, is said to have tact: tact is an entirely unconscious acquisition.

The two methods of acquisition may also be aptly illustrated by the two ways in which men learn grammar, or foreign languages. A boy brought up where none but grammatical language is spoken, learns to speak grammatically without consciously knowing it. A boy who learns grammar at school is painfully conscious of the way in which he acquires his grammar. So, too, a person who goes to France or Germany learns French or German unconsciously, and all the quicker because he learned it unconsciously; while a person who goes to a teacher at home learns French or German very consciously, and the length of time occupied in learning is in proportion to the consciousness of the process. Some persons will learn a foreign language by first getting a crude knowledge of its grammar, and a vocabulary of two or three hundred words, and then beginning to read novels in that language until they tumble into it, rather than learn it.

The mind seems, also, to have a faculty of getting an effect from the mere hearing of ideas which it does not understand or consciously take in. We read a book for the first time and cannot recite a single idea from it, but it has left an effect upon our minds which shows itself in our thought. We can understand the book better on the second reading, and that fact shows that the first reading left an effect upon our minds. If a concrete case comes up in our experience which has any relation to the principles that we read about, but did not understand when we read, we can make a judgment upon that case with much more intelligence than we could have had if we had not read the book.

Every one knows how opinions and prejudices are unconsciously formed. A book-publisher is well aware that a good title will often make the fortune of a book, while a poor title will as often spoil it, simply because of the impression that the title unconsciously makes upon people. I long refused to read "Adam Bede," because the title in some way sounded flat, uninteresting, dry, gray, dull, anything you please but attractive. Somewhat the same unconscious impressions make people look upon some letters, like M, V, B, D, etc., as heavier than N, F, P, T, etc. Thus it would seem shockingly *malapropos* to name a deep philosophical novel "Kitty" or "Polly." Such a book, so named, would hardly attract the readers who would be suited by it, and those who like light reading and took up the book for the sake of the title would soon throw it down in weariness. The book would "fall flat on the market." It must be admitted, however, that a large part of the benefit derived from reading a book rapidly for the first time, before making a careful study of it, consists in mere exercise of the nerve-processes which correspond to the peculiar sentences and phrases of the book. Thus, by reading a book, no matter how rapidly or carelessly, our brain-processes which do the merely linguistic work of taking in the form of the sentences, are accustomed to the work, and do that work mechanically, without help from consciousness, when the book is read a second time. But besides the purely mechanical gain, the mind takes in at a first reading unconscious impressions which are extremely valuable to it in its future more careful study.

But we need not further multiply cases of unconscious acquisition, for abundance of examples may be found by referring to Hartman's books, or to the books of his followers, and each person can find multitudes of examples in his own experience. Almost all our experience is acquired unconsciously. A little of it which strikes us peculiarly, or in which our interest is for any reason excited, penetrates to our consciousness when we first acquire it, but only a very little. Our opinions, our judgments, and all our thoughts, are molded or guided by our unconscious knowledge. Every idea in our minds, whether held consciously or unconsciously, serves as a boundary which defines the position and relations of every idea that we think.

The machinery of the mind may serve to explain away some of the mystery that beclouds our understanding of its ways of working. The physical organ of mind is the brain, and some physiologists mean by that term the entire nervous system. All that we know of the relation between mind and brain serves to prove that, for every idea or change in the state of the mind, a corresponding change takes place in the brain. A change in the mind is followed or attended by its corresponding change in the brain, and a change in the brain is attended by its corresponding change, or idea, in the mind. That is, a mental fact, an idea, is always attended by a physical fact, a nerve-process. Excite the nerve-process and you arouse the idea; arouse the idea and you excite the nerve-process.

Now all actious performed with a purpose or an end in view have a mental element, for there must be an idea of the purpose or end somewhere. In this sense, then, even the lowest of our actions, including reflex actions, are partly mental in that they are attended by the idea of purpose and the adaptation of means to an end. On this account some psychologists claim that even our lower nerve-centres, which govern the lower and reflex actions of our body, have ideas, but are unconscious.

We will, however, not enter into the discussion of that matter, but merely state that all our actions, since they are all actions for a purpose, are attended by an idea; if our actions are unconscious, their accompanying ideas are unconscious. It appears, then, that every movement of our body is preceded by a change in the brain and an idea in the mind, conscious or unconscious. Every movement of the body is preceded or accompanied by a nervous change; every nervous change is accompanied by an idea, conscious or unconscious, or by the modification of some idea, or ideas. A nervous change *must* accompany a mental change or idea, and *may* cause a muscular movement.

But, while nervous change must precede a muscular movement, we can regard an idea as either the cause or the effect of the excitation of its accompanying nerve-process, and the excitation of the nerve-process as either the cause or the effect of its accompanying idea. It is probable that thought causes nervous changes as it is also probable that nervous change causes thought. Our contact with the external world causes in our bodies nervous changes which produce sensations, which, again, cause other nerve-changes which arouse ideas in our minds. Disease of the nerves causes the production of ideas in the mind which have no outward counterpart, as in lunacy. But in reflection, thought is probably the cause, not the effect, of nervous change; and it is extremely probable, as will shortly be shown, that nervous change is never the original cause of the *existence* of an idea in the mind, but only of its *appearance* at the time of the nerve-excitation.

Now we know that the vast majority of nerve-changes take place without affecting consciousness. Yet is probable that every one of those nerve-changes is accompanied by an unconscious idea, or by a modification, in some measure, of the thoughts. As will be shown below, it is most probable that those nerve-changes which are made in the brain by contact with the external world, but which have no corresponding idea in the mind, do not produce ideas in the mind, but make modifications of the nervous structure which do modify those nerve-processes which are accompanied by ideas. But after a nerve-process *is* formed with a connected idea it may grow from the extreme of faintness to the extreme of definiteness, and there may be all degrees or stages in the progress of an idea, from the extreme of unconsciousness to the most vivid consciousness.

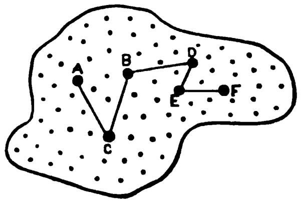
The first excitement of a nerve-process may be very weak, and its corresponding impression on the mind be very faint; but every reëxcitement of that nerve-process may increase the depth of the impression on the mind until the idea becomes strong enough to penetrate to consciousness. Examples illustrating this may be furnished in abundance by every one, but perhaps in greatest number by minds accustomed to reflection. Thus, I am busily writing and absorbed in thought when some one speaks to me; I do not notice them, and keep on thinking and writing; but let the speaker say the same words repeatedly in the same tone, and I will become conscious of them. The taps of a door left ajar, and swayed by a gentle wind, are often not noticed by a person in the room who is busily thinking or asleep; but the constant repetition of the taps finally excites consciousness, and they become unbearable, so that the person is aroused and rises to shut the door.

Sometimes the continuance of the excitation of the same nerve-process makes the mind go through the complete process of education, — starting with the unconscious acquisition of the idea, going through the conscious possession of it, and then allowing it to fall back again into unconsciousness. Thus, a person who goes for the first time into a room where there is a clock, will notice the friends he finds there and all the strange and pretty things about him, and only when he has got used to them, and his excitement cools, will notice the ticking of the clock. His interest is excited; he listens to it till its monotony grows wearisome, and gradually grows, like other people, unconscious of it.

But repetition is not the only means of bringing unconscious ideas to consciousness. Interest will work the same result much more quickly, and is likely to produce a better result. How quickly anyone will learn that which he likes to study, and which he is therefore interested in! The great secret that teachers try to learn is how to interest their pupils; and they know the reason well enough, even though they are unconscious of it, as they often are. Many things are often said in our hearing which we do not notice; they go "in at one ear and out at the other," we say. But if any occurrence makes us interested in any one of them, we can often call them up to consciousness. I may have been in a room while two men were talking, who casually said that they were in a certain place at a certain time, but as that fact and many others which they mentioned had no interest for me, I did not notice it; it merely made a nervous change in my brain, which caused an idea in my mind that was not strong enough to penetrate to consciousness. But suppose a law-suit arises in which my interests are at stake, and it becomes important to me to prove that the two men were in the place at the time they had mentioned before me, I try to recall what they said; I rack my brains and gradually call to consciousness one thing after another that they said, until I come to the fact that I am in search of. My interest in what they said has roused an otherwise unconscious idea to consciousness. Interest has accomplished the same result that repetition usually does, and has accomplished it much more quickly than repetition could have done.

Repetition and interest are, then, the two chief means of mentally reviving ideas. These two processes are mental, and proceed intelligently; the mind in using them keeps its purpose in view, and chooses the ideas that it needs from the mass of ideas at its command. By these processes ideas are fixed and revived directly from the mental side. But ideas may also be fixed or revived from the physical side, by excitation of the nerve-process. Thus, for example, disease will serve to fix ideas in the mind, as in hypochondria, or to revive ideas, as in drowning. But the fixation and revival of ideas, by excitation of the nerve process is an indirect process, and, being purely physical, proceeds at random, without intelligence or choice.

One idea is as likely to be affected by nerve-disturbance as another. This fact seems to furnish a reason why we must consider that thought is the cause, rather than the effect, of nerve-change. This furnishes a reason against the dictum that "the brain secretes thought as the liver secretes bile." For the peculiarity of thought is, that it proceeds with a definite purpose in view; is this, rather than that; for this, rather than that reason. A train of thought is a constant succession of different and difficult selections. If the cause of the thought were physical, the thoughts would come helter-skelter in a hodge-podge. If they do not come so, but come with any order at all, the idea of order or of purpose is behind them, and that idea can receive no explanation from physics. Moreover, it is most likely that nervous change does not *produce* thought, but merely fixes and revives it after it has been produced and has made a nervous impression. Nerve-change cannot produce nerve-processes which have any corresponding idea, even an unconscious idea, in the mind. All that nerve-change can do is to fix or revive nerve-processes that have corresponding ideas in the mind after those processes have been formed by thought. Thought is a cause of nerve-change; nerve-change, the cause of thought. The nerve-changes which are produced by merely physical causes can only affect those nerve-processes that have ideas connected with them, by either fixing or reviving them, or by modifying the substance in which they lie, and thus modifying their relations to each other. Thus, if we say that the dots and lines *a, b, c, d, e, f* form a nerve-process corresponding to an idea, *x*, while all the dots unconnected by lines are the parts of the brain not yet formed into idea-nerve processes, we may suppose any



changes whatever to take place in the chaos of unconnected dots without forming a connected nerve-process, like *a, b, c, d, e, f*. That and similar nerve-processes can be formed only by the occurrence of an idea in the mind, which straightway arranges a nerve-process as its physical correlate. That arrangement, being mental and made with a purpose, forms a harmonious connection of nerve-particles. Nerve-changes which proceed from merely physical causes can form no such connection or harmony, but can merely modify the relations of such processes as *a, b, c, d, e, f* to each other or to the rest of the brain, or can fix or revive them. It is this modification which constitutes the peculiar way in which each person looks at the ideas that enter his mind, and which makes up a large part of his peculiar personality. If nerve-processes, with ideas attendant upon them, could be formed by physical causes, we could conceive that many of our ideas originate by accidental nerve-changes, and that a system of education might be possible in which the teacher should excite certain nerve-processes in his pupil's brain in order to convey the ideas that he wished to teach. Education would then be a science of physical manipulation, and would be a branch of applied physiology.

It is enough for our purpose, however, to know that ideas may be fixed or revived by nerve-change after they have once been thought by the mind. Thought without nerve-change is impossible, but thought is the cause of nerve-change, and here, as always, cause is simultaneous with effect, not precedent. Thought precedes nerve-change in our conception, not in time; logically, not temporally.

Perhaps this physical mechanism of thought may do something toward helping us understand how unconscious thought is possible. It is easily conceivable that such nerve-processes as *a, b, c, d, e, f* should be of various lengths and depths. It is conceivable that our conciousness of an idea shall be relative to the depth of this nerve-process; that is, to the depth of the impression that its corresponding idea makes on the mind. Repetition of an idea, or interest of the mind in it, may increase the depth of the impression until it reaches consciousness. Thus we may suppose that there are in the brain multitudes of nerve-processes which correspond to ideas in the mind. Those processes must have a certain depth before they can affect consciousness, and all processes which have a depth less than that, represent unconscious ideas. This, at any rate, is the most likely illustration that we can find; and, even if it were not true in fact, it would nevertheless serve to illustrate the facts which *are* true. Since "nerve-processes" and ideas always accompany each other, they are often used as almost synonymous terms.

The mind does undoubtedly hold unconscious ideas, and some such physical mechanism as we have described is the one that the mind uses. When it acquires unconscious ideas, those ideas make nerve-processes in the brain which are not deep enough to affect consciousness. When, by repetition or by interest of the mind in what relates to those ideas, their nerve-processes become deep enough, they reach consciousness. Of course it will easily be seen that the deeper the nerve-process the more likely will it be to be retained; that is, the more vividly or the more often we are conscious of an idea, the more likely we are to remember it, and that, therefore, conscious ideas are, *ceteris paribus*, more likely to be retained than unconscious ideas. But in this connection it must be remembered that repetition is not the most potent means of bringing ideas to consciousness, and that constant repetition (as in the ticking of a clock) will make the idea pass through the conscious, back to the unconscious, state. An unconscious idea may, therefore, from its very frequency and persistence in the mind, remain unconscious, and some unconscious ideas are thus more permanently fixed in the mind than many conscious ideas. In fact all the fundamental ideas or great principles of thought, action, and life are unconsciously held by us, and yet they are most permanently fixed in our minds. But the common and less fundamental ideas that we think, are usually more likely to be permanently fixed in our minds if we are made conscious of them, than if they are allowed to remain in unconsciousness.

THE TOPICAL TEACHING OF HISTORY.

BY J. L. HUGHES, TORONTO, CAN.

It is a cause of deep regret that so many pupils leave school believing that history is of little use except as a means of testing their memories, in order that bad marks or other punishments may be given for failing to remember. They are usually forced, by the method of treating this subject, to regard it as a confusing collection of dates, names, and events, related to each other only by chronology and the weak linking afforded by the names of rulers alike uninteresting, be they names of kings, emperors, presidents, or governors. Foreign and civil wars, commercial progress, the extension of the influence of the church, political intrigues, international diplomacy, constitutional growth, the development of the people, literary culture, and educational advancement may be found side by side in the same chapter, — utter strangers in everything but the accident of having occured in the reign of the same sovereign. The same old kings who ruled the nations have continued to rule historical writers and teachers until recently; indeed, do still govern the vast body of teachers in their teaching of history. The constitutional, intellectual, and religious development of a nation are served up in scraps as carved by the various kings; great principles, and the mighty movement of true progress, are treated as secondary matters and tacked on as mere ornaments for the coats of successive sovereigns. The rulers with their whims, their physical, mental, and moral peculiarities, and their dates, are allowed to occupy the first place in most school histories, and the genuine work of the world is seen through the crevices between the kings. Events are fitted to the sovereigns, who should have a place in history only as they influenced events. This is a fundamental error in writing or teaching history. Dr. Arnold held that the record of the development of the "race institutions and religion" of a country constitutes its real history, and modern writers and thoughtful teachers are acting in accordance with this principle to a large extent.

A merchant who wishes to learn the results of his business transactions at the close of the year, and to satisfy himself as to the comparative importance of his various trade enterprises, and their relative influence on each other, might possibly do so by examining his daybook alone, but it would require the labor of months to accomplish what he could do in a few hours by consulting his ledger. Histories are usually merely day-books of the business of nations, and so students read them through and through without remembering clearly the events narrated, their causes, or their immediate or ultimate bearing on any of the departments of national life or progress. The continuous concentration of thought which is so essential in the formation of correct conclusions concerning the effects of national customs or tendencies, is impossible when the attention is distracted by the presentation of so great a variety of unconnected events to the mind. If these events were grouped in ledger form so that they could be taught topically, the student would save much time and be able to make more satisfactory progress. Instead of giving facts relating to all kinds of events promiscuously, as they occurred, and as they would be recorded in a diary, they should be classified under a few leading heads, and the consecutive history of each class during the period under consideration taught independently. The chief elements that go to form the life and true development of a nation should be selected, and the history of each element narrated without referenee to the others, except in so far as it is directly related to them. The historical topics should vary slightly for different periods and nations, but the following will generally include all that are necessary: 1. External History, including foreign relationships and wars, the loss or extension of territory, etc.; 2. Constitutional Growth; 3. Religion; 4. Literature; 5. Social Development; 6. Commerce; 7. General Progress.

Before beginning the topical study of the history of a country in detail, it is essential to glance at its history as a whole, and subdivide it into periods by noting the great changes that have taken place during its growth. This may be done in a single lesson, and such a lesson will prove of great advantage to the pupils. It gives them a general idea of what they have to learn; it connects the present with the past in their minds; and, most important of all, it fixes in their memories a connected series of landmarks, about and between which they can readily group events as they become acquainted with them. This will greatly facilitate the learning and retention of the facts of history. It is much easier, and usually more important, to remember that an event occurred during a certain period than that it happened at a certain date. The mere date may be practically unsuggestive, while the association of the event with a certain historic period can scarcely fail to call to mind a series of related facts. The dates which bound the periods should be fixed, and thoroughly learned, and then events should be remembered as related to them. Different teachers may adopt various bases of division in deciding the number of periods into which to divide the history of a country, and the best basis for the history of one nation may be quite unsuited to that of another. It will usually be found best to make the dividing lines between the periods correspond with the dates which mark the great formative eras in a nation's history.

Having thus given a general sketch of the history of a country, and divided it into periods, the teacher is ready to proceed with the filling in of the necessary details. These should be few or many, according to the age of the pupils. Whether few or many however, they should be taught topically. The following are some of the reasons for recommending this course:

1. Events are more easily learned and remembered by this than by any other method. The ease with which impressions are made, and the length of time they remain fixed in the memory, depend chiefly upon the degree of attention given to a subject by the learner. When all conceivable kinds of historical events are recorded on the same page, it is not possible for the reader to concentrate his attention on those having a special influence upon any particular department of historical study. If he is seeking for the causes which led to a great constitutional change, he should not have his attention distracted by anything which did not in some way affect the constitution. He will thus be able to fix his attention entirely on one subject at a time, and the certain result of such a course will be clearer conceptions and more permanent impressions.

In a subject like history, the successful study of which depends so largely on the memory, it is of the utmost importance that the laws of "simple suggestion," or "association of ideas," be taken advantage of to the fullest possible extent. The most important primary law of association of ideas is the law of resemblance or similarity. One fact will suggest another of a similar kind, and so a series of thoughts referring to the same subject will be recalled in the mind much more readily than if they related to dissimilar subjects. The application of this principle to the study of history is clear. In the topical arrangement of events, facts of a similar character, all leading to the same end, are learned in consecutive order, and will therefore be more easily remembered in accordance with this fundamental law of association through similarity. It may be urged that "contiguity of time" is also a law of suggestion, and that the fact that events occurred at the same time will serve to associate them in the mind, however much they may differ in character. It must be remembered, however, that "contiguity of time" refers only to the experience of the individual who tries to remember. If two important events occurred about the same time, both of which directly affected me, the remembrance of one of them will be pretty certain to recall the other to my memory. Even if these events had not directly affected me, but merely interested me, they would be likely to recall each other. This would not be the case, however, if the events had occurred before I was born. We remember events by "contiguity of time," not because they occurred at the same time, but because they affected us at, or nearly at, the same time.

2. The teaching of one department of the history of a country facilitates the teaching of every other department. The events immediately connected with any one of the topics into which the history may be divided will have a bearing more or less direct on some, if not all, the others. When the constitutional history has been studied it will be found that the history of the church, or of literature, or the social development of the people, during the same period, may easily be fitted to it. The teaching of each additional topic paves the way for the more easy learning of those which are to follow.

3. When one department of history has been taught, the teaching of each successive department reviews the work that has been done. The connection existing between the various topics compels this reviewing. It is done, too, in accordance with one of the most important, though most neglected, principles of the science of education; it is done incidentally. The portions already learned are reviewed, not as set lessons assigned for review, but in natural connection with the teaching of new work as a necessary part of that work. It will be conceded by all, that reviewing is essential to fix facts in the memory. It must not be forgotten, however, that, when reviewing is merely a repetition or re-teaching of a lesson already learned, it soon loses its interest. Pupils cease to give active attention to it because it has lost the charm of novelty. Facts previously learned should be impressed on the memory by being used as the basis for acquiring additional knowledge. The ploughshare of knowledge should be kept bright, not by frequent rubbing, but by constant use in turning over fresh soil. This is the highest kind of reviewing. It is the only kind to which a child is ever accustomed before it goes to school. This method of reviewing incidentally, not directly, — by using knowledge, instead of merely repeating it, — is only possible in the subject of history, when it is taught by the topical method. Instead of traveling over the path of history once only in search of a promiscuous collection of facts, the pupil goes over it several times, each time with a specific object, and uses in each successive excursion the information acquired previously.

4. By teaching topically the teacher develops the reasoning powers of his pupils, and trains them to read history intelligently after they leave school. It is most desirable that students of history should be taught to trace causes to effects, and effects to causes. The facts of history are of little value as information merely; the lessons to be drawn from them constitute their real value. When teaching topically, events are not presented as of importance on their own account, but as elements which together produce certain results. The circumstances are regarded as subordinate to their consequences, and so the study not only exercises the memory, but calls into action the higher faculties. This naturally makes students take a deeper interest in the study of history as they grow older and their reasoning faculties develop, while it is a well-known fact that, as usually taught, the interest grows less as the pupils advance in years. This fact has led many thoughtful writers to question the propriety of teaching the subject at all in school. It is certainly most deplorable that the vast majority of pupils have such a distaste for the subject when they leave school, that many of them never read an historical work afterwards. This cannot be the fault of the subject itself. It can only be due to the character of the school-histories, and the methods of teaching which are commonly practised. It is clearly impossible to give pupils a sufficient amount of historical knowledge during the time they are at school, and it is therefore of the highest importance that the method of teaching it should accomplish two results: 1. It should satisfy the growing demand for a higher kind of mental activity than the mere exercise of memory; 2. It should give a pupil a decided taste for historical study after he leaves school, and should qualify him for pursuing such a course in a systematic and intelligent manner. Both of these objects are accomplished by the topical method of teaching the subject.

There is nothing in the preceding remarks which is intended to express disapproval of any of the excellent "Child's Histories," which are written in interesting narrative form, and are so well calculated to attract the attention of the young. The object has been to show that a taste for such narratives decreases rapidly as pupils grow older; that the "mere tissue of names and dates, and dead, unmeaning events," soon becomes wearisome, if the names, dates, and events have to be memorized; and that a more intelligent method of presenting the subject should be adopted by teachers and those who write school-histories.

A VISIT TO THE HARVARD ANNEX.

BY REV. EDWARD A. RAND, A.M.

It was a winter-sky above, full of gray clouds threatening snow, and a white landscape below, the day we sat foot upon the Appian Way. We had never expected to tread that "Regina Viarum," but it was our privilege at last to see it,—not at Rome, but at Cambridge, Mass.,—one of the smallest but proudest streets of this scholastic city. Here, flanked on one side by the classic piles of the University, and guarded in another direction by the famous elm of Washington, is the Harvard Annex. The homes of Longfellow and Lowell are not far away, and close at hand is that picturesque cluster of stone walls inclosing the Protestant Episcopal Theological School. The Harvard Annex, however, is not made by its surroundings, but challenges attention in itself. Not even the Appian Way makes it, and as little does the building that is its home. This is a very plain affair,—a chocolate-colored, two-and-a-half story frame house, modest while ample, like a Shaker bonnet. Its pitch-roof may look ambitious, but this is not to express a sentiment and voice the aspiration of literary young women, but only to shed the snow easily. The Annex occupies four rooms in this building, the two front ones in the first and second stories. From the reception-room, that has a look of home-comfort, you pass to an apartment that is used as a recitation-room. This is simply furnished; in the centre is an oblong table covered with a green-painted cloth, and there are blackboards at the right, where we noticed that some amateur mathematician had been chalking. One apartment overhead is used as a reading-room. Here have recently been accumulated six hundred volumes as the basis of a reference-library. Its quarters are in no crimson-tinted alcoves, lofty and ponderous, but a few plain wooden shelves support the infant library. The adjoining room is for purposes of recitation. A few pictures are on the walls, and in the centre is a second table covered with green-painted cloth. The chairs and a cabinet of apparatus in the department of physics, are about the only other pieces of furniture. The funds of the Annex, manifestly, go not for furnishings, but brain-work. In these rooms meet the various classes of young ladies, though a few go to the professors' houses. Ah! here is a chattering flock of the "annexed" beings themselves, bright-eyed young ladies, nigh the age of eighteen or twenty. They have been holding the fortnightly meeting of their association for literary purposes, and still linger, chatting away. We think of Mary Somerville, so gifted by nature, and yearning for culture. When achieving an education, in her younger days, "every member of her family regarded her studies with disapproval or contempt." How she would like to look in upon the favored groups of the Annex! Who can say but that she does? We passed out of the Annex into the winter-cold, buttoning up our overcoat and our reflections also on the status and prospects of this recent Cambridge notion.

The Harvard Annex is "an attempt," as Mr. Arthur Gilman, the Secretary, puts it, "to bring the instruction of the best body of teachers in the United States to bear upon the education of women." The cradle of the movement was rocked in the home of Mr. and Mrs. Gilman, as the plan was devised by them. First mentioned to Professor Greenough, he opened a hospitable door to it at once, and has been a warm friend ever since. Other Harvard instructors favored it, and were willing to be teachers. "My mother did not *prevent* me from reading," said a literary woman of her early home-training; and this was President Eliot's attitude toward the movement. His consent to its existence was necessary, and was readily obtained. A number of ladies, connected mostly with the families of Harvard professors, coöperated, and these were constituted a Board of Managers; Mrs. Agassiz, Mrs. Gurney, Mrs. Cooke, Mrs. Greenough, Mrs. Gilman, Miss Alice Longfellow, Miss Lilian Horsford; Miss Ellen T. Mason of Boston has recently been added to this number. There was chosen also an Advisory Board of five Harvard professors. These mapped out the country the students of the Annex might explore, appointing courses of selected study for special students, stating the terms of admission, and fixing the grade of instruction the same as that in Harvard. They marked out a course identical with that in the college department for all those willing to climb the rounds from Freshman to Senior. For those successfully pursuing any course of study, they appointed a certificate or diploma. The corporation of the University was only asked to grant certain library privileges and the use of the Harvard examination-papers, and this they did. It will be seen that this movement was a peculiar one; not an outside attempt of barbarians bringing their aries and testudo to break a hole in Harvard's sacred wall for the admission of woman, but a quiet, friendly effort inside of Rome to help certain daughters without. The Annex is of Harvard, and yet outside of it, entirely independent of the corporation, and yet entirely dependent on its teachers.

There had thus been a successful manufacturing of wheels and track; but where was the money for running the new educational railroad, officially christened the "Private Collegiate Instruction of Women by Professors and other Instructors of Harvard College," but popularly known as the Harvard Annex? Friends of the movement subscribed over sixteen thousand dollars toward the opening of this new road of learning, and its continuance for four years at least. It was expected that the fund would be increased, by the fees for instruction, seventy-five dollars for any course, and two hundred for a full year. The proud Appian Way, by virtue of its name, could fittingly claim to be the place for the location of the Annex, and this is the third year that the wheels of the movement have been turning, the enterprise flourishing under the oversight of its Boards, and the prudent, genial, fatherly care of the Secretary, Mr. Arthur Gilman.

There were twenty students the first year, forty-seven the second year, and thus far this year there have been forty, a number that will undoubtedly be increased. Twelve are now taking their first year, nineteen their second, nine their third. Ten are taking the full academic course of four years. Twenty have already this year passed an examination, and will take their final examination in June. If the gauntlet be successfully run, this accession would increase the number in the regular academic course to thirty. The average age of those taking this course is about the same as that of the young men in like studies at the University. The age of those in special courses is generally greater. Last year all but eight of the students came from Massachusetts; and of the Massachusetts students the homes of all but six were within a distance of ten miles from the State House, Cambridge furnishing eighteen. This year the data are about the same, the students in special courses coming from all parts of the Union. In the past, institutions like the Academy at Bradford, Wellesley and Vassar Colleges, have furnished a very few students, but the largest feeders of the Annex are the high schools of Boston, Cambridge, and vicinity. There has been a steady increase in the amount of work accomplished by the young ladies. The first year there were fifty-eight members in all the classes, the second year one hundred and five members, and thus far, the third year, one hundred and sixteen.

Let us see what may be the fabrics of study these busy workers are weaving. Twenty-two are giving themselves this year to the courses in Greek; seventeen take Latin; twenty-eight, English; fifteen, German; four, French; one, Italian; ten, History; one, Fine Arts; eleven, Mathematics; three, Physics; four, Botany. Nobody this year, though, cares to look up at the stars or down at the minerals. Sanskrit calls in vain, and so do Philosophy, Zoölogy, and Political Economy at the present time. There are various courses of valuable University lectures open to the young ladies, which they are patronizing.

To show how many of the Harvard teachers are interested in this work, we mention the fact that twenty-nine classes, last year, were taught by eight professors, three assistant professors, and twelve instructors. Several interesting questions present themselves.

What is the standard of scholarship in the Appian Way? The marks are very high. It would be unfair to make a comparison between the Annex and the College, since so many at the Annex are specialists, aiming in a given time to accomplish everything possible in their department. If at any time the young men wish to make the comparison, however, the young ladies may be entirely at ease in permitting it.

Is the Annex-course of study practicable sanitarily? Entirely so. No wheels have broken under the strain of any burden of study. We fancy some are thriving on the annex-diet like the Scotch on oatmeal. Why should the course of study be unhealthy? Brain-work is generally considered to be promotive of health, and why should the cultivation of woman's brain-powers be unhealthy? That study may be wisely tempered with exercise, and the body be made strong to bear up the brain, Dr. Sargent of the Hemenway Gymnasium has generously provided rooms and suitable apparatus and has given the young ladies instruction.

What is the aim of the ladies in pursuing these advanced studies? It is safe to say that the drift in general is toward the work for which nature has marked out woman-kind, and to which their preferences usually take them, — a calling put this way by a clever writer; "Nothing is more powerful than a pious and sensible woman to bring a man into proper order, and to mould his soul as she will."

If this be woman's work, and yet man be the superior being and woman the inferior, as some claim, then certainly she ought, through her education, to be specially furnished for this great task. If the two be on a level, as we claim, then it is only fair that one should be as well educated as the other. There is at the annex a manifest tendency toward the study of the classics, — a tendency that we think also to be a wise one. Plato is a popular author at the Annex, though he is credited with this ungallant remark about women,—that men who became cowards transmigrated after death into the forms of women; —not their *souls*, we would add. It would seem as if these linguistic pursuits in the direction of the Latin and Greek indicated a tendency toward journalism or some kind of authorship. To use English with precision, to hit with our words the mark exactly, is one of the great demands of the day; and if we would know the fittest kind of pebbles to put into our slings, Latin and Greek will greatly help us; and it is very noticeable how many women at the present time have taken the field of life armed with a penholder. That many of the Annex students are also educating themselves to be teachers, is evident.

What is the relation of this movement to woman's admission to the University? There was no intention in the organization of the Annex to force such an issue, and none exists now, and yet the existence and success of the Annex will have an important influence on the question of woman as a Harvard student. A friend to the advanced education of woman criticised the Annex at first, declaring that it was postponing woman's admission to the University, and that the grade of instruction to women would be lowered. After a year of teaching in the Annex, sharply watching it, he conceded that he was wrong. His plan favors the immediate admission of women to the University, but that would have necessitated a revolution. The Annex, if it result in woman's admission, will bring her in naturally. As for letting down the grade of instruction, he saw that it was impossible; the girls would not allow it!

The funds raised for the Annex promise to continue it six years in all, rather than four, as at first contemplated. After that time the Board of Managers purpose to leave with the public the responsibility for its continued existence. If the wheels of the Annex turn no longer in the Appian Way, we fancy it will quit; not because the wheels have broken down, but because they have been fitted to turn, and achieved a still better record elsewhere. This young institution will become a permanent one, equipped as never before for its work. We can see one other may-be, — that the Annex will pass out of the Appian Way because its students have passed between the posts guarding the entrance-way to the beautiful University lawn, to become students in the University. We hope this may be so, for the stores of scholarship accumulated there ought to be made available to the greatest number possible, and in that case woman must be included.

However, *omnia sunt humana*. Of these two things we are certain, — that the Annex has done, is doing, will do, a noble work. It is shedding from its modest candle in the Appian Way some ray of light on the question of the higher education of women. It is also confuting the latter half of that piece of pig-tail wisdom from Cathay which finds some echoes here in America: "The glory of a man is knowledge; but the glory of a woman is to renounce knowledge."

BASIS OF MORALITY.

PROFESSOR J. B. MAYOR delivered an inaugural lecture at King's College, London, some time since, upon the question, "What is the good of Moral Philosophy?" The following abstract is transcribed ("Mind," XIX.,) for two reasons: (1) because of the general value of the lecture; and (2) because of the theory of morality which was promulgated by the professor. The abstract of the lecture says:

> "Professor Mayor summoned up the popular objections to this study under three heads: (1) It tells us nothing new, but merely formulates truisms; (2) It busies itself with speculative questions, and is of no use for practice; (3) All other moral teaching is superseded by Revelation. After expressing a qualified assent to objection (2), as far as it referred to the actual procedure of modern writers on Ethics, he went on to examine objection (3), and asked what was to be done with those who did not accept Revelation; were they to be declared incapable of morality? He pointed out that to base morality on religion was to invert the logical order, since our moral instincts formed the main foundation of our belief in a God as in a revelation professing to be divine; that the Bible itself presupposed a knowledge of right and wrong; that in many points the moral teaching contained in the Bible was either transitional (*e.g.*, the prohibition of usury, and of things strangled), or incomplete (as in reference to slavery); that in any case moral philosophy was needed in order to systematize, to develop, and to apply the teaching contained in Scripture. Turning to objection (1), he remarked that it assumed the existence of one recognized rule of life and theory of conduct; but if we looked not to words but to actions, we should see that there was no such uniform theory of conduct; the ideals of happiness, duty, and virtue varied for different races, periods, classes, and ages. It was the office of 'descriptive ethics' to bring into clear light the views half-consciously held by those who were not philosophers. Some of these views had been systematized and become recognized ethical theories, as the cavalier's or soldier's view in the code of honor, the lawyer's view in jurisprudence or the theory of right. The study of descriptive ethics was not merely of interest in itself, — it was practically useful as supplying data for our own guidance. To know what, as a fact, men have believed and acted on under varied conditions of life during the past ages of the world, will help to determine the rule of conduct for the small fraction of humanity which happens to occupy the earth at this moment. Passing to practical ethics, we find modern life governed partly by old traditions, partly by novel theories propounded as so many new gospels by their several schools. It is the office of moral philosophy to bring them all before the bar of reason, to strip them alike of venerable associations or pretentious assumption, and exhibit the underlying principles in their naked reality. Whatever the question raised may be, when it once takes the form, 'Ought I to do this thing or ought I not?' the ultimate decision rests with ethics. Particular sciences, such as medicine or political economy or theology, may be called in to give their evidence as to the facts involved in the case; but the ethical end, which is the perfection of humanity, necessarily overrides every subordinate end. Besides its descriptive and judicial functions, moral philosophy has a no less important work of discovery, to advance the lines of ethical thought, to devise new means for promoting the upward progress of humanity. This branch of the subject was illustrated by a reference to various ethical desiderata, — *e.g.*, the determination of the relation between absolute and relative ethics, between ethics and politics, between ethics and political economy, and the establishment of a scientific theory of education."

REMARKS UPON THE ABSTRACT.

Professor Mayor says "that to base morality on religion was to invert the logical order, since our moral instincts formed the main foundation of our belief in a God as in a revelation professing to be divine; that the Bible itself presupposed a knowledge of right and wrong." These assertions raise the whole subject of morality and religion. Which one of these two conceptions is the condition precedent of the other? In general terms, religion designates the feelings and acts which relate to God, and may or may not be independent of revelation; morality designates the feelings and acts which relate to one's fellow-men. Man is endowed by his Maker with certain faculties, among which is that which is sometimes called the moral sense, or conscience, which is dual in its constitution, — one of its functions being to compare the acts of its possessor with an assumed standard of action; the other function being to create a feeling of obligation, duty, or oughtness upon the soul when the comparison is completed. After the standard is erected, the rest is relatively easy; the moral sense does not create a standard; it instinctively moves out toward a standard to which it clings, and thus lays a sense of duty upon him to whom the conscience belongs.

What faculty creates the standard by which to gauge conduct? The faculty of intelligence, or the power to know; speaking more precisely, it is the function of the creative imagination to provide the standard, which is tested by intelligence and faith. The case now sums to this, when metaphysically considered: (1) The creative and intellectual powers of man erect a standard of action as a condition precedent to the exercise of conscience; (2) the first function of conscience is to compare together this standard and the contemplated act; and (3) the second function of conscience is to create the impression, or conviction, of duty in the mind of him who contemplates to perform the act. From these introductory propositions, it follows that the Bible can in no sense presuppose a knowledge of right and wrong, except in so far as any and all things to be known presuppose a faculty to know; as, mathematics presuppose an intelligence to know them, botany or a historical transaction presupposes a mind that may learn it; on the contrary, the Bible constitutes the materials from which the intelligence and imagination of man select standards to guide conduct; the conscience then comes into exercise and pronounces right and wrong of man's doings. Knowledge or faith precedes the action of conscience. The question thus resolves itself into this: Does knowledge of feelings and acts relating to fellow-men precede that of feelings and acts relating to God? The answer to this question will touch the logical order of morality and religion.

The Bible represents Adam as knowing his God and his relations towards Him at a time when no fellow-man existed. Here was religion and no morality. Eve joined Adam; both knew duty toward God; all their acts were gauged by their knowledge of God and their feelings toward Him.

Here were religion and morality, — the former being a condition precedent to the latter; for the conduct of these two human beings toward each other was founded upon the relations which they conceived themselves to sustain toward their Creator. The Bible is a history of the Hebrews, whose social and civil institutions were theocratic, — that is, religious, — in conception and in practice; whatever was done, either to God or to man, was done because of relations that were known, or that were believed, to exist between God and the people. In this history religion preceded morality, and constituted the foundation upon which morals grew. Morals are generically conventional forms of procedure which men have adopted for their intercourse among each other; these forms have been cast upon the conception which their originators entertained of the forms of service which would be acceptable to the Deity. Morals are enlarged in modern times so as to include taste, cultivation, and many allied notions; yet they embody the ideas of right and wrong.

The institutions of the ancient monarchies, as well as those of the Jews, were theocratic in all essentials; their social relations were regulated by their governmental notions, which rested upon obligations toward a Supreme Power as the people conceived Him to exist. Mythologies are products of these theocratic conceptions; their relations were religious in the ultimate analysis. The ancients, in some quarters of the globe, considered that the mind and will of Deity resided in the brain of their chief ruler, whose pronunciamento was therefore regarded as authoritative and sacred; a king's word was the word of God; the king ordered social and civil forms. The Incas of Peru were descendants of the divine sun, and settled for the people what they should do and eat and wear, and whom they should marry; royalty was hereditary in the divine rulers. In this theory regarding the presence of Power and Knowledge, which reached a distinct enunciation in Greece, is embodied the conception of the divine right of kings, a theory that sways so great a portion of the world to-day. All these theories and practices among the various peoples rest upon a foundation of religion, which determines the form of their morals. Law itself has its foundation-stones sunk into religious knowledge and faith. In modern times law implies the formulas which people follow in their intercourse with each other. Perhaps no one institution has been more potent in the world than the *oath;* it occupies the chief place in government and society to-day as fully as it ever did; it is religious in its origin and conception; religion sanctified it with Abraham, and it was sanctified by religion when the soldiers of Rome took the oath of allegiance to their country; the oath of office which is taken by officers of state in the United States is sanctified by religion.

These facts demonstrate the position which religion sustains toward morality; religion logically precedes morals. Conscience is divine, not human, in its instincts; its only standards are those which embody the notion of God. "Our knowledge of the Supreme Excellence, our best evidence even of the existence of the Creator, is derived not from the material universe, but from our own moral nature. It is not of reason, but of faith. In other words, it springs from that instinctive or moral nature which is as truly a part of our being as is our reason, which teaches us what reason could never teach,—the supreme and transcendent excellence of moral good, which, rising dissatisfied above this world of sense, proves itself by the very intensity of its aspiration to be adapted for another sphere, and which constitutes at once the evidence of a Divine element within us, and the augury of the future that is before us." — (*Lecky.*) Coleridge closes the argument when he says: "The one great and binding ground of the belief of God and a hereafter is the law of conscience."

NOTES.

ÆSTHETICISM.

THE English language has been increased by a few conceptions which are now receiving considerable attention from some classes of people. About thirty years since an attempt was made in England to bring art and literature back to natural principles. Ruskin, Rossetti, Millais, and Hunt took a very active part in this reform, as it was termed. The present development of this pre-Raphaelite movement is known as æstheticism, and may be conceived as an effort to apply the natural laws of æsthetics to deportment, attire, and to all forms of art and literature generally. An æsthete is a person who is supposed to conform his life to the laws of æstheticism. The exponents of the æsthetic ideas disregard fashion in so far as her requirements run counter to those of the individual; the man or the woman dresses in such style as suits best the one who appears in the costume. If the new terms shall result in liberating the human race, or any considerable portion of it, from the bondage of imperious fashions, and lead to freedom in true artistic conception, the people can smile placidly at much of the offensive sentimentalism which turns the heads of persons whose minds should be better balanced in matters of taste. The creed of æstheticism appears to be summed up in the line of Keat's: "Beauty is truth; truth, beauty." But this is a very general assertion, capable of infinite diversity of theory and application.

HOLLAND AND FREE SCHOOLS.

"THE Dutch in Java appear to be giving considerable attention to native education. At the close of last year 171 schools for the instruction of natives alone were in existence, and besides these no fewer than 116 private institutions were receiving subsidies from the State. In the former the number of pupils amounted to about 25,000, nearly all boys."—*The Schoolmaster.*

It is one of the important facts of history that free common-school education is a product of the statesmanship of Holland. This State was the first to develop that system of popular education for the masses of the people which exists to so wide an extent in the world to-day. The Puritans left England in 1609 and went to Leyden, where they remained nine years, becoming thoroughly acquainted with the system of free schools then established in Holland. These Puritans came subsequently back to England, and thence to Plymouth Rock. In 1645 laws were passed in the Massachusetts colony providing for an advanced education at public expense, in part, at least. The Dutch established free schools in the colony in New York about the same date. These two colonies were the two centers in America from which free schools have radiated over all the United States; and thus Holland is the nursery which brought the idea of free education for all. The divisions of territory into school-districts is also from the same source. No nation in the world has done more for public education and religious freedom of mankind than the small State of Holland, whose people have literally driven back the sea from its former shores in order to furnish land for their dwelling-places.

TRAINING-SCHOOLS IN SCOTLAND.

At the annual meeting of the Educational Congress of Scotland, Mr. Mackay, the President, delivered the address. In it he says: "The one desideratum is the external governing body. When that is provided, and the schools are put in direct connection with the universities, the halcyon days of Scotch education will indeed have arrived. They are not far distant, and the Educational Institute can do much to hasten their advent. But what of the soul, the life, with which the uniform system is to be animated? Whence is it to derive the vitality essential to successful effort? The most perfect adjustment, the most symmetrical and harmonious combinations, are but as limbs of a lifeless body if the proper energising influence be wanting. The teacher is the life of the system; and no perfection of educational mechanism can atone for defective teaching. With our present disjointed, fragmentary systems, we have fallen too much into ruts of caste. Our primary teachers have one kind of training, our secondary teachers another, and our professors a third. No doubt primary teachers have in our own day risen through the different grades of the profession to the professor's chair; and there are not a few at this moment in our primary schools who would do no discredit to a professorate. But, as a rule, the divisions of the profession correspond pretty closely with the distinctions of schools and universities. Why should this be so? The lawyer, the clergyman, and the doctor know no such distinctions. Their start in life may be humble; but there is not a prize in their respective professions that does not lie directly in their path. They will encounter no obstacle of prejudice, of caste, or of professional disqualification. Teaching can never be a profession, in the best sense of the term, until all its prizes are equally open to its humblest aspirants. They must, however, have the necessary qualifications; and as employment in the higher grades implies, as a rule, a university training, it follows that the university must become more, and the training college less, of what may be termed the fountain of scholarship. The peculiar functions of the training colleges are as indispensable as those of universities. The history of education, the school systems of foreign countries, the collected experiences and observations of the best teachers of all ages and nations, and, above all, the practical exposition of the art of communicating knowledge,—these are surely as necessary to the teacher as *decisions* to the lawyer, *cases* to the doctor, and *homiletics* to the clergyman. I believe that our training-colleges are only beginning to assume their rightful positions in the educational system; and that, while the University degree will, as regards scholarship, be the virtual certificate of merit of the future, the professional training will be as indispensable a passport to the teacher's office as the Divinity Hall to that of the clergyman. There is no argument for the one that does not apply with at least equal force to the other; and when recognized scholarship and thorough professional training combine to equip all teachers for their work, a new and a brighter era will dawn on education. The primary school will then become the starting-point of every instructor of youth, however distinguished. The higher posts of the profession will be equally open to all; and the castes, classes, and divisions of the present will forever disappear."

LANGUAGE.

THAT philosopher, Ralph Waldo Emerson, has written an article on "The Superlative," which appears in midwinter *Century*. The essay is timely. It is invaluable to educators, because it is a forcible exposition of the weakness which exists in the theories followed in teaching the subject of English language throughout the country. Mr. Emerson is unsparing in dissecting the forms of speech that are so commonly used by the emotional and illiterate people, and by those persons who claim better attainments, who, "like the French, are enchanted; they are desolate, because you have got, or have not got, a shoe-string or a wafer you happen to want,—not perceiving that superlatives are diminutives, and weaken; that the positive is the sinew of speech, the superlative the fat. If the talker lose a tooth, he thinks the universal thaw and dissolution of things has come. Controvert his opinion, and he cries 'Persecution!' and reckons himself with Saint Barnabas, who was sawn in two. All this comes of poverty. We are unskillful definers. From want of skill to convey quality, we hope to move admiration by quantity. Language should aim to describe the fact. It is not enough to suggest it and magnify it. Sharper sight would indicate the true line. 'Tis very wearisome, this straining talk, these experiences, all exquisite, intense, and tremendous,—'The best I ever saw;' 'I never in my life!' One wishes these terms gazetted and forbidden. Every favorite is not a cherub, nor every cat a griffin; nor each unpleasing person a dark, diabolical intriguer; nor agonies, excruciations, nor ecstasies our daily bread. . . . The first valuable power in a reasonable mind, one would say, was the power of plain statement, or the power to receive things as they befall, and to transfer the picture of them to another mind unaltered. 'Tis a good rule of rhetoric which Schlegel gives: 'In good prose, every word is underscored,' which, I suppose, means, never italicize. Spartans, stoics, heroes, saints, and gods use a short and positive speech. They are never off their centers. As soon as they swell and pant, and find truth not enough for them, softening of the brain has already begun. It seems as if inflation were a disease incident to too much use of words, and the remedy lay in recourse to things. I am daily struck with the forcible understatement of people who have no literary habit." Thus does the essayist write.

The educator feels too keenly the truth of the above statements to attempt to qualify them in any degree. Teachers are concerned to discover whether there can be an improvement in regard to the proper use of language, and to this end they must look for the cause of the phenomenon of Superlatives. Language is thought, which is a form of mental activity. Emotion is a phenomenon of the soul, which may be converted into intellectual activity and into will-power. Language is significant sounds, else it is not within the term as properly used. Words are the units of thought and of language, and they have a certain extent and content of meaning. Suppose that a person has learned but little of the content of words which he uses, but has facility of utterance, and is emotional: he becomes excited, and what results? The superlative is the product of the circumstances. What is the problem, then, to teachers? It is to teach in such a mode that the child will be enabled to convert its wealth of emotion into mental activity and will-power. This result can be accomplished with diligence and time. Pupils are to be taught the content of words; they are to be shown the capacity for thought and feeling which words contain; say, rather, they are to be shown how great is the content of the words which they use. If a person of large means and of ambition should be placed in a small house, he would feel the need of building additions to the structure in order that he might be able to exhibit in it all of his possessions. In the same manner is it with words: if one sees but a small capacity in the words that he uses, his emotional promptings introduce additions, lean-tos, bay-windows, and cupolas,—that is, he enlarges the capacity of his words by adding to them adjectives in the superlative degrees. Had an architect taken the ambitious man about the house, and opened secret doors, and entered large and unknown rooms, and have climbed blind stairs to unexpected stories,—the good owner had been spared his supposed improvements to his house; he has found ample space inside. Words have content, capacity, space, which require very diligent application to survey. The quotation above suggests that the remedy for "The Superlative" lies in learning more of things and less of words. But is this wisdom? What are words except things? — things which are thought and being? Sensuous impressions do not give words, language; they are merely the occasions which introduce the words that already exist in some form. For example, take this from Max Müller: "Tribulation, anxiety, is derived from *tribulum*, a sledge used by the ancient Romans for rubbing out the corn, consisting of a wooden platform, studded underneath with sharp pieces of flint, or with iron teeth. The similarity between the state of mind that had to be expressed and the state of the grains of corn shaken in a *tribulum* is evident, and so striking that, if once used, it was not likely to be forgotten again. This *tribulum*, again, is derived from the verb *terere*, to rub or grind. Now suppose a man's mind so oppressed with the weight of his former misdeeds that he can hardly breathe, or look up, or resist the pressure, but feels crushed and ground to dust within himself: that man would describe his state of mind as a state of *contrition*, which means 'being ground to pieces,' from the same verb *terere*, to grind."

These two words, 'tribulation' and 'contrition,' are often used with the superlative; but who would, who could, use this degree to enlarge the content of the words, if he appreciated their size as they stand unqualified? One might venture to say deep contrition, but his attention would then be upon the person who was contrite rather than upon the idea of contrition. The more completely a person realizes the significance of a word, the less desire has he to add to it words that modify it. A person who is ignorant of the specimens, and unacquainted with their history and significance, is quite lonely and helpless in a large cabinet of minerals; if he should be asked to select a diamond, he might hand down a piece of "fool's gold," because it appears brilliant. No teacher would dream of making a pupil at home in the cabinet without teaching him the qualities of the stones and their history, as well as their present value to the arts and sciences; the pupils would be required to study the specimens, individually examine them, and when needed, help would be given to him. Words are things, beings, in far greater measure than is any one material object; for nature delivers to the student only specimens in the individual concrete, whereas words are things *in extenso*. Words, as things, bear the same relation to material things as the mass does to the individuals composing it. If children were instructed about words as rationally as they are about material objects, they would deal less in the superlative degrees of language, and Schlegel's rule, "In good prose every word is underscored," would be apprehended in its right meaning,—to wit, that the writer of good prose selects his words with scrupulous care as to their capacities of content, whence the words require no external underscoring, because the emphasis lies in the word itself. Educators depend upon foreign languages to enable pupils to understand the words of the English tongue. But the words that are used by children have meanings which can be imparted and understood by those persons who are ignorant of foreign speech. It is not enough that pupils can use words correctly in a few sentences: they should be made familiar with the content of words beyond what they may need for a few sentences.

MISCELLANEOUS NOTES.

THE Harvard management accepts an income whose proceeds are to be expended in giving medical education to women in the University.

BOSTON UNIVERSITY has recently come into possession of the bequests which were willed to it ten years ago by Isaac Rich. The amount is over $1,000,000.

DR. J. V. QUIMBY of Jersey City has demonstrated, recently, that a person who is asleep may be chloroformed and operated upon without awakening. He performed three experiments, succeeding each time. This fact shows that patients may occasionally be treated without even the suffering which belongs to anticipating operations; and it illustrates the dangers which may attend chloroform in the hands of criminals.

DR. EMIL HOLUB, the great African explorer, has enriched science and a knowledge of Africa by his seven years of travel in the Zambesi country. He gathered ethnological specimens from thirty native tribes; his collections in natural history include forty skulls, four hundred skins of birds, and twenty thousand insects; he also brought with him three thousand dried plants, mollusks, fossils, and minerals. Dr. Holub holds that British rule in South Africa is in the interest of Christianity and enlightenment.

THE Training School for Nurses which is attached to Bellevue Hospital, New York city, recently held its ninth annual commencement, graduating twenty-seven ladies from a course of study and practice which extends over two years of time. The course includes a thorough knowledge of cooking and nursing. The managers prefer that applicants should be from twenty-five to thirty-five years of age.

THE people of the United States are arousing to the reproach under which they lie because of the extension of Mormonism. This disgrace has become national; the institution is an offence to the nineteenth century. Public meetings bring the attention of the people to the evil; Congress appears to be in earnest to devise measures to suppress the institution; and the administration lends all its influence with the people to destroy this vile blot upon enlightened sentiment.

THE Irish landlords do not support the English Government in its attempts to suppress the Land League. The League has discontinued its attacks upon the persons of the landlords, but if an Irishman pays his rents he "wakes up the next morning to find himself a dead corpse." The landlords, in very many cases, attempt to conciliate the tenants so that they shall not interfere with hunting, which is so great an end of existence to a class of the landed gentry. But the tenants kill the dogs and horses, and thus practically deprive the landlords of life, as they pay no rents. If the land-owners acted in unison with the ministry, the League would have been powerless by this time to commit further depredations.

THE efforts which the people of the South are putting forth to improve the facilities for educating the masses of youth are worthv of special note. They show that the United States are gradually assuming a homogeneity of interest and purpose which gives to every American the right to rejoice for the prosperity of his country. Some of the Southern States are struggling with gigantic problems of finance and of social conditions; but the magnitude and the intensity of the contests indicate that wide-spread interest which precedes improvements. In republican forms of government the people can never forget that "eternal vigilance is the price of liberty"; apathy toward measures of public importance is the opportunity of demagogues.

AUGUSTE ALEXANDRE PHILLIPPE CHARLES BLANC died in Paris, January 18. M. Blanc was born in the village of Castres, Tarn, November 13, 1813. He was a distinguished member of the French Academy, and was widely known as a teacher, editor, art critic, author, and artist. M. Blanc took an active part in the history of his country during those eventful years under Napoleon III. His celebrated work, "Grammaire des Arts du Dessin," is one of his most valuable works; it is devoted to the grammar of architecture, sculpture, and painting, and is written in a style which fairly allures the reader to abandon everything else until he has finished the work. M. Blanc has many admirers in all lands where his writings are known; his erudition commanded the respect of his peers in Europe and America.

DEAN STANLEY visited America, and declined to give any attention to what did not interest him. Phillip Brooks (October *Atlantic*) says that the Dean was asked if his visit had not wearied him; he answered: "No! I have declined to see anything in which I was not interested. Kind friends have asked me to go to see factories and many other things for which I did not care; but I have confined myself to things which I did care for, and so am not tired." This habit of mind is suggestive from an educational view. The Dean was a gentleman of very liberal attainments, but they did not keep him liberal in the sense that a liberal education predisposes one to be interested in matters that are beyond the line of his immediate attention. It also appears that his strength held out because he did not tax it upon things which were not to his taste. Teachers are led to reflect upon the experience of men who have risen to eminence; it will not settle facts to call them unusual. How far should experience like that cited above be allowed to modify the usual notion of a liberal education? is a question of prime moment to teachers. Should children be forced to pursue studies that are distasteful to them? Other questions are suggested by the habits of the Dean.

THREE or four years ago a chair of Comparative Philology for the special study of South African Languages was established at Cape Town. Dr. Theophilus Hahn was appointed to the chair; he was reared among the natives, is a scholar of rare attainments in linguistic science, is a traveler of experience, and is an indefatigable student. His first book was recently published, entitled "Tsuni-Goab, the Supreme Being of the Khoi-khoi, or Hottentots." Max Müller reviews the book in the *Nineteenth Century* for January. It appears that the term Hottentot, or Hüttentüt, was given by the Dutch to the natives of the Cape of Good Hope on account of the clicks and harsh sounds in their language; the name means quack-physician. The Hottentots call themselves the Khoi-khoi, the men of men; they call all sons after their mother, and all daughters after their father; the eldest daughter is highly respected, and the milking of the cows is left entirely to her. In Sanskrit, daughter is from *duhitar;* the milker, from *duh*, to milk; whence daughter in English. These Hottentots have a practical religion, traditions, poetry, and forms of home-life. Their Supreme Being is Tsuni-Goab; *i. e.*, the Red Morning, the Father of Day, or East. Nanub is the God of Evil; *i. e.*, darkness. Gurub, thunder, is from *gu*, to cover, as with dark clouds. The studies of Dr. Hahn will be of vast service to philology.

THE government of college students is tending steadily towards those forms which control society in general in the United States. Yale and Princeton have continued to administer government according to the old theory, which is enunciated in the phrase *in loco parentis*; while Harvard and Cornell have adopted the theory of citizenship under which every person, student or not, is responsible directly to the civil authorities under whom he lives. In the former theory, teachers stand between the students and the civil laws; in the latter theory, the students are amenable directly to the laws for all of their conduct which affects society. The tendency of the consideration which is expected by society from students was illustrated by the treatment which twenty-three freshmen received recently in Princeton. These young men went through the town one night in the manner of those who have little regard for the rights of citizens. The municipal authorities brought immediate action against them, and they were fined much as ordinary people who disturb the peace are compelled to suffer the penalties of their misdeeds. A college faculty may take any course which wisdom shall dictate to restrain the vicious within their own organization; but society at large has been tolerant far too long of the barbaric practices of college men, which often disgrace communities. In proportion as local authorities shall permit no special privileges to college students over what the citizens of the town enjoy in common, will college government be elevated in the United States.

DR. JAMES DONALDSON, LL.D., late rector of the High School of Edinburgh, has accepted the chair of Latin in Aberdeen University. Dr. Donaldson is a man of vigorous thought, and he is a progressive educator. His six lectures on the history of education in Prussia and England won esteem for him. In the address which he gave in Edinburgh, at the opening of the Watt Literary Association, " On Some Defects in the Educational Organization of Scotland," he traces the theories of school-organization that have been followed in Scotland, and contrasts them with those of Germany. He shows that the educational system of Scotland is wanting in those purposes or ideas which constitute the unity,—organization, in fact,—of a system. The primary schools proceed upon one notion, the secondary or intermediate upon another, and the universities upon still another. The inevitable result follows : pupils are illy prepared for entering the advanced schools, which must therefore do work that should not be demanded of them ; the universities partake too much of the character of mere schools. In Germany every system of organization rests upon a well-defined conception of purpose ; hence boys reach the universities well prepared ; these schools purpose to extend the domains of learning, rather than to teach the accumulations of knowledge of the past and present. Dr. Donaldson alludes to the absence of marked intellectual abilities and personal power of the members of Parliament from Scotland. The universities of Scotland are ranked below those of England. Theology is shown to be in need of men of large accomplishments and of warm sympathies. The education of teachers for their profession is but poorly provided for in Scotland.

FOREIGN NOTES.

PRUSSIA.—The Prussian Government proposes to raise the elementary school-teacher's salary to a minimum of $200, and the teacher's pension to a minimum of $75 a year. Heretofore a large number of teachers did not receive $100 a year. The minimum proposed seems meagre compensation, but it is not less than the average pay of teachers in many of our States, as may be seen by examination of the reports of the Commissioner of Education. Thus, in Alabama, the average salary amounts to $52.36 ; in Illinois, to $200 ; in Maine, to $125. From a report on elementary schools in Berlin it appears that 114 principals received salaries averaging 3,540 marks each (a mark being twenty-five cents), besides which they were furnished dwellings free of rent. The salaries of 1,110 male teachers averaged 2,235 marks each, and of 518 female teachers, 1,462 marks each.

German teachers suffer many restrictions that would be intolerable to the liberty-loving American. For example, the teachers of Hartum, Prussia, recently invited some teachers of neighboring towns to a conference. The subject selected for discussion was "Jesuiten-Pædagogik," (the educational theories of the Jesuits). The local authorities, in accordance with instructions from Berlin, considered this an unfit subject for discussion, and prohibited the conference. All over Prussia the local authorities and teachers must accept what Bismarck teaches. In 1872 the Jesuits were considered the greatest enemies of the empire; in 1882 they are Bismarck's warmest friends, whose doctrines no one is allowed to criticise.

NETHERLANDS.—The citizens of Amsterdam celebrated, on the 9th of January last, the two hundred and fiftieth anniversary of the establishment of their "Athenæum Illustre." This school has long been considered as efficient as the State universities, but it was not until 1879 that the government granted a charter enabling the city of Amsterdam and the province of North Holland to create two additional faculties, and to name the institution "University of Amsterdam." The new University is in an excellent condition. The number of its students is 577, or 92 more than the highest number in a State University. The faculty of medicine alone has 343 students, while the total number of medical students in all the three State universities is only 327; viz., 158 at Leyden, 89 at Utrecht, and 80 at Groningen.

SWITZERLAND.— *University Statistics.* — The following table shows the number of students in each faculty of the Swiss universities in 1881–82:

	Basle.	Berne.	Zurich.
Theology,	56	35	18
Law,	41	139	34
Medicine,	100	150	180
Philosophy,	70	61	119
Total,	267	385	351

Of the 150 medical students at Berne, 29 are females. The school of veterinary surgery connected with the University of Berne has 30 students.

PORTUGAL. — *The University of Coimbra.* — According to "Annuario da Universidade de Coimbra" for 1881–82, this institution has 887 students; viz,, 46 in theology, 368 in law, 41 in medicine, 112 in mathematics, 201 in philosophy, and 119 in fine arts. In 1880–81 the total number of students was 888. The standard of the University of Coimbra has been considerably raised during the last ten years. The Portuguese Government seems to be especially anxious to promote secondary and superior education, but it does very little for elementary schools. The school population (6–13) numbers 615,949; of this number only 198,131 attend school. The same condition of affairs exists in Spain.

SPAIN.—*The Education of Women.*—The cable brings the news that the Spanish Government intends to establish high schools for women. Whoever has watched Spanish legislation and administration during the last decade, must have come to the conclusion that Spain is the land of promises and good intentions, but not of deeds. The government has proposed a good many educational reforms during the last ten years, but has not carried out a single reform project. The first step for Spain would be to establish a sufficient number of girls' elementary schools. There are at present 1,500,000 girls of school age, while only 500,000 attend school. Five million men and seven million women can neither read nor write. Spain spends $1,250,000 a year for education, and $25,000,000 for the military establishments. The population of Spain is 17,000,000.

LL.D.'s IN FRANCE.—The authorities of the leading colleges and universities in the United States have made praiseworthy efforts, during the past few years, to give significance to their degrees. The practice of conferring honorary degrees has declined, and examinations have been required for degrees in course. The necessity for such action is apparently not confined to the United States. According to the *Revue Internationale de l' Enseignement* for January, 1882, the French faculties of law did not create any doctors of laws in 1804–05. In 1806 they created 12; in 1820, 16; in 1830, 21; in 1840, 53; in 1850, 59; in 1860, 58; in 1870, 108; in 1872, 131; in 1875, 191; in 1876, 189; in 1877, 174; in 1878, 175; in 1879, 178; in 1880, 175. This rapid increase has excited some suspicion, and the French Government has interposed a check. Henceforth the examination for the LL.D. degree will be more vigorous. The candidate must first be a licentiate of law, and then submit to three examinations before a State Commission; viz., (1) on Roman law; (2) on French civil law and the history of French law; (3) on constitutional law.

JAPAN. — *The University of Tokio.* — The following is an abstract of the Calendar of the University of Tokio for 1881: The University embraces the departments of law, science, literature, and medicine. The account of the department of medicine is published separately. All the courses in the department of law, science, and literature extend through four years, and there are four corresponding grades of students. In the department of law, the students all pursue the same course. In the department of science, six courses have been established, and in the department of literature, two courses. The intention is ultimately to use the Japanese language in all the departments, but, for the present, instruction is given mainly in the English language. The student is also taught either the French or German language, but in the department of law he must study the French language. Students are admitted at the beginning of the academic year. Applicants for admission to the first year must be at least 16 years of age, and have completed a course in the secondary schools. The University has a library, a botanical garden, laboratories, a large collection of scientific apparatus, and eight cabinets. The total number of students was 205 in 1881; viz., 52 in the department of law, 110 in the department of science, and 43 in the department of literature. The number of graduates in the same year was 92; viz., 21 in law, 63 in science, and 8 in literature. During the year 15 students were sent abroad at the expense of the government; viz., 10 to England, 4 to France, and 1 to Germany. The teaching staff consists of a president, a vice-president, and 62 professors,—9 of law, 20 of science, and 23 of literature.

GREAT BRITAIN.—Those familiar with the record of current events in Great Britain and her colonies must be impressed with the great activity in all departments of education. The code of 1870 had an effect quite beyond any of its expressed purposes, in pushing the idea of national education to the foremost place among questions of policy. While schools are rapidly multiplying, it seems to be a fact generally admitted that the system of public education has not reached its best development. The free school as it exists in the United States is as yet unknown to the mother-country, but there are indications that it is one of the certainties of the future.

The Free Education League.—The Free Education League has begun to issue a series of leaflets, with the view of informing the public mind on the bearing of the scheme of free-schooling upon the whole problem of national education. A large number of authoritative extracts are put in evidence in favor of the abolition of fees; among them is a quotation from an article contributed some time ago to the *Fortnightly Review* by Mr. Joseph Chamberlain, now president of the Board of Trade and a member of the Cabinet. Mr. Chamberlain was one of the earliest, and has been one of the most earnest and uncompromising, advocates of the free-school principle, and his position among statesmen seems to point to a solution of this problem at no very distant day, in accordance with the immediate object of the League.

The London School Board.—At the meeting of the Board on the 19th of January, 1882, the Finance Committee submitted a report on the estimate of expenditure from March 25 of the present year to March 25, 1883. The estimate for the current year, up to March 25, amounted to £724,870, there being a surplus of £48,291; the sum required from the rate-payers was £676,579. The estimate for the ensuing year amounted to £762,452, and less "sundry receipts" and the estimated surplus, the sum of £679,595, would be required from the rate-payers. From the itemized statement it appears that £32,389 are required for the enforcement of the compulsory act, and £37,130 for the industrial schools. The estimates for the ensuing year are made upon an anticipated average attendance of 248,396 children, at a net cost of £1 12*s.* 8*d.* each. The average attendance has increased from 30,853 in 1873, to 213,365 in 1882.

The reports and estimates of Ministers of Education are an important part of colonial official documents. The following from Victoria is worthy of notice: During the first week of December last the Minister of Education asked the colonial assembly for £557,851,—this sum being the estimate of the cost of educating in the year 1882 the children of the State schools. The average cost per child will be £5 9*s.* ½*d.* One of the Victoria school inspectors, Mr. Holland, says in his report: "I think the minimum age at which children are allowed to be enrolled, much too young.

It is a pitiful sight to see babies of three years of age sitting in the gallery on a hot day, with their poor little limbs cramped in one position for half-an-hour at a time, and inhaling the overheated atmosphere of a crowded infant room. They would be much better out in the open air, breathing God's glorious oxygen. Parents find it convenient to make a nursery of the school, and no doubt settle the account in doctor's bills and in the injured health of their offspring. No child under five, or at the least four, should, in my opinion, be admitted into a State school. The schoolmasters, of course, wish to have these children in the schools because they are paid according to numbers."

SCIENCE.

A RE-EXAMINATION of the theory that the halogens are oxides of unknown radicles has been made by Dr. H. Züblin. Notwithstanding all attempts made in the most varied manners, and under the most favorable conditions, no facts were observed which could support the assumption of the presence of oxygen in the halogens.—*Anni der Chemie.*

THE German Government send out two expeditions for observing the transit of Venus this year: one to the mouth of the La Plata River, the other to Magellan Straits.

ACCORDING to the experiments of Professor Forbes and Dr. Young, the speed of the blue waves of light exceed those of the red about one per cent.—*Les Mondes.*

PROFESSOR HELMHOLTZ makes the following remark: "Our generation has suffered under the influence of spiritualistic metaphysics; the coming one will have to be on its guard against materialistic philosophy."

A NEW arrangement for sensitive flames is described as follows: "A jet of coal-gas from a pin-hole burner rises vertically in the interior of a cavity from which the air is excluded. It then passes into a tube a few inches long, and, on reaching the top, burns in the open air. The front wall of the cavity is formed of a flexible membrane of tissue-paper, through which external sound can reach the burner."

M. BISCHOFFSHEIM'S observatory, near Nice, is nearly completed. The equatorial telescope, probably the largest in the world, has an object-glass three feet in diameter, with a focal length of over fifty feet. The total cost of the observatory is nearly a half-million of dollars.

AMONG the recent publications of the Census Bureau is an extra Bulletin containing tables showing the approximate areas of the several States and their counties. It appears that many of the estimates in common use differ from those of the Bulletin by thousands of square miles. Teachers will find many interesting and important facts noted in the tables, or on the accompanying map.

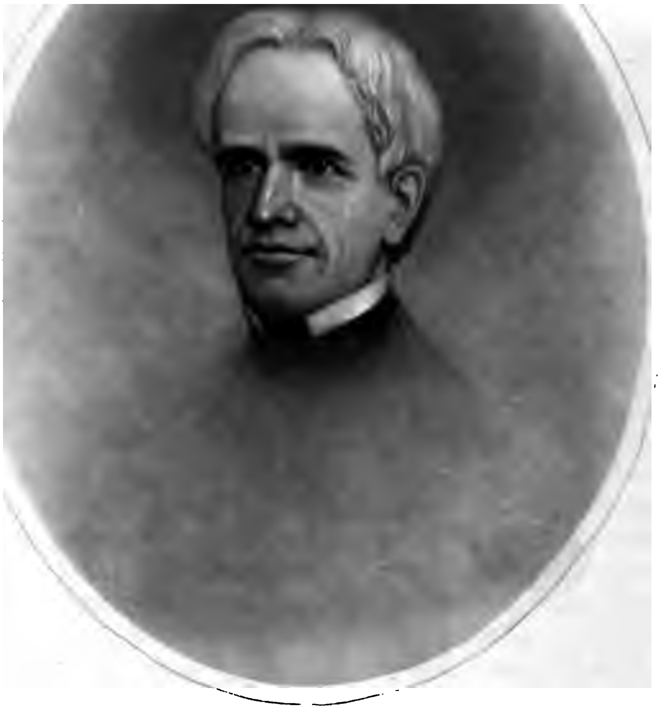
M. CLEMANDOT was induced, by observing the diffusion of the solar light by clouds, to experiment with mineral wool, or spun slag, in connection with the electric arc, and found that it seemed to absorb the light so as to make from 75 to 80 per cent. available for illumination, while the ordinary processes utilize only from 45 to 50 per cent.—*La Nature.*

SPECIMENS of air taken at the summit of the Pic de Uidi gave the same proportions of carbonic acid as those obtained in the plain of Vincennes. —*Bulletin de Chemie.*

Is there anything new under the sun? The Emperor of China, in the year of grace 976, possessed a painting, the subject of which left its frame every morning, and was in view only at night. The Chinese artist mixed his paints with a substance extracted from oyster-shells; and now, a thousand years later, oyster-shells and sulphur are astonishing the old folks by rendering their clock-dials and match-safes visible in the night.

IT is said that a marked improvement has been noticed in the acoustic properties of the Grand Opera House, Paris, since the introduction of the electric light. The hot fumes arising from the old gas footlights acted as a screen, and obstructed and marred to some extent the voices of the singers. With the electric light no fumes and very little heat is given off; hence it benefits the ear as well as the eye.—*L'Electricien.*

DR. H. C. CHAPMAN of Philadelphia recently read an elaborate paper before the Academy of Sciences of Philadelphia, on the anatomy of the hippopotamus, and drew the following conclusions: "Beginning with the pig, we pass by easy transition to the peccary, which leads to the hippopotamus, and thence in diversing lines to the ruminantia on the one hand and the manatee on the other. Palæontologists have not discovered a form which bridges over the gap between the hippopotamus and the manatee, but it will be remembered that certain fossil bones, considered by Cuvier to have belonged to an extinct species of hippopotamus, *H. Medius*, are regarded by Gervais as the remains of the *halithorerium fossile*, an extinct Sirénean, of which order the manatee is a living representative. I do not mean to imply that the manatee has necessarily descended from the hippopotamus, but there is evidently a generic connection between them."



EDUCATION.

No. V.—May, 1882.

INSTRUCTION IN PHILOSOPHY IN COLLEGES AND UNIVERSITIES.

BY JOHN BASCOM, D.D., LL.D.

Instruction in philosophy meets with peculiar difficulties as contrasted with almost any other study in the ordinary collegiate course. So far as other subjects, like ethics, show these difficulties, they do so from their affiliation with philosophy. The first embarrassment which presents itself in teaching philosophy arises from the great multiplicity of opinions which prevail upon fundamental points,—opinions which are in every variety of way, and in every degree, antagonistic to each other, and are sustained by great names and by considerations of more or less weight. This difficulty is partially reduced by an approximate agreement in many practical results, and in the action these involve in the guidance and government of the mind. Yet the fact remains, that the moment we pass a comparatively narrow empirical region, the fundamental powers of mind are interpreted in a great variety of ways, resulting in sharp conflict. Hence the teacher of philosophy has the difficult task of carrying the instruction of immature minds into a region of speculation and warfare.

A second embarrassment arises from the fact that these creative theories of philosophy stand closely related to the most comprehensively practical questions in life. Our views of the nature of knowledge, of methods of education, of social institutions, and of the validity of moral and of religious convictions, must either be without ultimate reasons, or find these reasons in philosophy. From this fact it follows that any system of philosophy enforced in instruction prejudges a variety of questions on which men are very sensitive, and in reference to which they distinctly reject leadership. This difficulty in time, however, is reduced by the fact, that while theories of social construction and of faith turn on the nature of human powers, and so upon philosophy, these connections are to most minds obscure, and are frequently overlooked. A philosophy and a faith are often held by the same person which are inconsistent with each other, and thus both philosophy and faith gain through ignorance a freedom of discussion which would not be allowed them, if their true dependence were perfectly understood. There are, moreover, social theories, practical codes of morality, and an accumulation of religious convictions and incentives which rule the present hour with comparatively little deference to philosophy, and so philosophy is granted less grudgingly its speculative liberty. In like manner, in hygiene and in medicine, there is a body of experiences, opinions, and prejudices which constitute a practical code of life, that gives way but slowly to any new theory of health. In spite of this, however, discussions in hygiene, whether of body or of mind, are peculiarly open to bitterness, and are easily obscured by passion.

Notwithstanding these obstacles in the way of higher instruction in philosophy, this instruction is especially necessary both to weaken the dogmatic spirit in this department and to prevent an easy, supercilious solution of questions of philosophy which professes at the same time to ignore them. We ought at least to give the mind an intelligent outlook over this largest, most permanent, most inevitable field of human thought, and some slight freedom of movement in it. If instruction in philosophy should subserve the second purpose only, of reducing the conceit of ignorance, it would amply repay the labor expended upon it. It is no more possible to be without principles of philosophy, expressed or implied, than it is to maintain the daily routine of life without involving physiological laws. It is not the question whether we will or will not philosophize, but whether we will do so consciously and carefully, or obscurely and hastily. Science does not easily withhold itself from philosophy, nor from the disparagement of philosophy. The profound feeling testified to by the very contempt expressed, sooner or later, sweeps it into the vortex of speculation, a vortex whose force no broadly thoughtful mind ever fails to feel.

Wise instruction in philosophy cannot make its conclusions assume any more certainty in specific results than the facts, when comprehensively surveyed, imply. It must aim rather to give a fair and somewhat full survey of these facts, reducing the sense of confusion and conflict by distinctly indicating the purposes which all theories pursue, the practical results in which they unite, and, still more, by pointing out the few great tendencies or currents of thought out of which all these discrepancies spring. Wise instruction will also make and deepen the impression that men, acting collectively under the mutual corrections and compensations of erratic, individual thought, do, in their practical convictions, cling somewhat closely to general lines of truth, and move forward, though it be slowly, in their development.

Empirical philosophy is disposed to regard the foremost and most fundamental truths of knowledge, those which others refer to innermost acts of comprehension, as the accumulated deposit of human experience, an increasing residuum of obscure but ever-recurring solutions. Little as this view is acceptable at the precise point at which it is broached, it is broadly applicable to the history of philosophy, and may ever and anon be pointed out in discussion as a very significant and reassuring fact. There is perhaps no truth of which metaphysicians need more often to be reminded, than that the theories of philosophy, so far as they have any sufficient purpose or foundation, are theories of human knowledge; that human knowledge is the knowledge of men in general, and that this knowledge is not, by a great remove, so inconsistent and contradictory as are the theories of philosophers concerning it. Wise instruction, therefore, will not allow itself to flutter off on the wings of a theory far from the subject under discussion,—to wit, the convictions of men and the grounds of those convictions.

Instruction should assist the student to escape dogmatism on the one side, and skepticism on the other, as equally at war with wisdom. Dogmatism arises from too narrow a view within the field of philosophy; skepticism arises from a remote and obscure view of the field itself. It is the greatest gain in the higher regions of thought to discover the changeable nature of truth with advancing knowledge, and at the same time its firmness of direction, the worth of its practical guidance, and the wealth of its perpetual unfolding. Dogmatism and skepticism equally miss this conviction, which grows inevitably out of the breadth of the things to be apprehended and the narrowness of the faculties we bring to them, and so lose the greater share of the gains of an enlarging intellectual life.

In the conflict which springs up between different forms of dogmatism, and between dogmatism and skepticism, each tries to protect itself by exclusion, by limiting attention and instruction to its own conclusions. This is one of the worst results in education of these partial and antagonistic tempers. It is at once the manifestation of weakness and its enhancement. It matters little whether it is skepticism or dogmatism that enters on this policy of restriction, — its ultimate results must be mischievous. The proper defence against dogmatism is more scope in instruction, and it is equally the fitting defence against skepticism. The truly common ground for both, and the common correction for both, is a survey so large as to include what both have to offer, and far more. If our educational institutions are to attain their full strength, and not ultimately succumb to the narrowness of a method, their line of development must be in this direction of an ever-broadening survey of the field of knowledge. Such an unfolding is opposed to narrowness of thought, whether expressed in premature affirmation or premature negation; but is in no way opposed to depth of thought and a wholesome confidence in its conclusions.

Instruction in psychology should recognize the fact, that in the more complex and practical subjects of inquiry, our conclusions should be provisional. In social science, in art, in morality, in philosophy, in religion, it is a provisional opinion, one that formulates the best results that offer themselves under our present knowledge and experience, that subserves the purposes of progress. Such a formula always contains one or more unknown terms, whose exact value remains to be determined. A provisional opinion gives as safe a rule to work by as the most absolute dogma, and at the same time one that is open to all the conditions of growth. It is a mistake to suppose that either skepticism or dogmatism implies the health and vigor of the powers of mind. Skepticism, as a temper of mind, is the loss of grip; while dogmatism is a spasmodic grip at one thing, with the feeling that, if this is missed, nothing remains. The truly active mind trusts itself to retain conclusions, to lay them aside, and to frame new ones, and is no more fearful and uncertain in one of these acts than in another. This safety and confidence, however, disclose themselves only in connection with the close continuity of thought, and its slow movement in vital fashion from point to point.

It is this provisional opinion that instruction in philosophy should aim at. The student should withhold himself, and be withheld from a precipitate conclusion. The formation of opinions should be deliberate and cautious. It is not till the solution is complete, and the elements are tranquil, that we have the conditions of perfect crystallization.

A college course offers but a brief space to philosophy, and this fact renders the question of method the more urgent. There are two ways in which the study may be pursued. The history of philosophy may be made the chief subject of inquiry, and the present state of philosophy be the last topic reached. Or this method may be reversed: present conclusions may be first discussed, and this discussion may be sustained and broadened by a history of philosophy. The last method, we think, is to be preferred. The historic tracing of the growth of philosophy may, it is true, set up some defence against a narrow, pushing temper in the instructor; but such a temper will mar any method, and we ought not to make our method a defence against bad instruction, but the best approach for good instruction.

Interest attaches more directly and spontaneously in the mind of the college student to philosophy in its living questions than in its historical relations. Indeed, till he knows something about philosophy, his thoughts will hardly be much occupied with its history. Few young men reach the last year of a college course without having their attention directed with some decision to the philosophical problems which underlie so much of our social life, and reappear in discussions in so many ways. The danger is much greater of premature conclusions than of no disposition to inquire into these topics. A discussion of philosophy, therefore, which gives broadly the points of division and the grounds of division, the points of agreement and the grounds of agreement in philosophy, will meet in almost all young men with active and eager attention.

When the mind is more fully awake to the problems of philosophy, and is beginning to find the terms for a mobile opinion, a tracing of their historical developments becomes intensely interesting. One is then prepared to see how often philosophy has revolved through the same orbit, and yet with what modifications and gains at each revolution; how certain extremes and certain reactions have followed each other; and how sure the human mind is at one time or another, in one place or another, to develop a new interest in any phase of truth that has been left behind. To be able to lay down proximately the general direction of progress which has belonged to a great movement of the human mind, and to see how eccentricities of opinion have balanced each other, and so sustained and supplemented the general development, is the highest and latest attainment of thought.

By this method, also, the larger acquisitions and better insight of the instructor are made most directly available in helping the student. The great gain of instruction over experience is that it indefinitely shortens the processes of growth. We are put at the end of our journey more speedily, and yet have gathered its chief lessons. This rapid transformation of the experience and insight of others into personal knowledge, though often less successful than we think it to be, is, none the less, the secret of progress. The office of instruction is to give us the chart of thought, and so to guide us quickly through the multiplied facts which it expounds. Nowhere is a superior mind more hopeful than when it is dealing with the manifold fluctuations of history. The student first receives the key of thought by an inquiry into philosophy, and then repeatedly applies this key to the separate problems of philosophy as they have arisen again and again in the human mind.

It ought not to be felt that ideal instruction is in any sense colorless instruction, a merely transparent medium to the facts presented. The figure on which this notion proceeds is not applicable to the case in hand. Facts are not visible to the average mind in their intellectual force save through a vigorous intellectual medium. For a fitting analysis of facts and interpretation of them, the student must look to his instructor. The mind that is to guide other minds cannot be too positive and powerful, provided always it has the breadth and research which should accompany these qualities. No erudition and no critical acumen can atone for any hesitancy and uncertainty in the ordinary movement of the mind. Intellectual pursuits are only valuable through intellectual conclusions, and if, at the end of our research, we cannot, in a clear and somewhat decisive way, reach results, we might have saved ourselves the labor of inquiry. There is no habit of mind so commanding, so wholesome, and so stimulating on the part of an instructor as the ability to draw from any discussion sober and firm conclusions. This is the remuneration of all labor, the summation at which all discipline aims, and we are not to flinch from it because it involves danger. The very qualities which fit an instructor to exert influence over young men, must fit him also to exert excessive influence. The proper protection here is not weakness, but more strength,—is not a more narrow view, but a still wider one. The great advantage of adding to philosophy the history of philosophy is, that it discloses the strong currents that have swept in divergent and in opposite directions, and compels the mind to see how comprehensive any proximately correct system must be; the many truths that must come together in it from many quarters. There is no study more liberalizing than history, and no branch of history superior in this respect to the history of thought. A well-informed instructor of vigorous powers has an immense advantage over his pupils in guiding their conclusions; but as this vantage of superior and extended insight is the very gain for the sake of which we put them under his instruction, we ought not to wish to lay upon it any real limitations.

The wisdom and forbearance of the instructor under these conditions do, indeed, become points of great moment. In dealing with mind we are dealing with a living thing, and our success will be proportioned to the skill with which we adapt what we do to the laws of mind, and so make our action reappear as stages of growth. The moment thought is pressed by authority, to that degree it ceases to be thought and to have the strength of thought. The more independent minds also, as jealous of personal liberty, are made erratic and wayward by the mere appearance of pressure. The teacher is not so much responsible for the conclusions which his pupils reach, as he is for the method and spirit in which they seek the truth. While the instructor has no right, in a region of speculation, to enforce the acceptance of particular conclusions, he has the right, both by example and precept, to urge that breadth and candor in inquiry, and that delay in forming opinion which furnish the mind with the conditions of sound and flexible judgment, and at the same time thoroughly fortify it within itself.

There is no field more favorable than philosophy for inspiring this spirit and for its exercise. The student can be encouraged and aided in a comprehension of opposing views on any given question in philosophy, and at the same time be held to a provisional opinion till the wide spaces of thought have been overlooked, and the mind becomes at least a little familiar with the entail of different theories, and their general powers of interpretation. This ability to press inquiry, and yet to hold the judgment in abeyance, is a supreme possession in the more difficult fields of thought. A study of philosophy which branches out into the history of philosophy has this advantage,—that the history of philosophy brings constantly new light to our first conclusions, as well as receives light from them, and helps to keep them longer pliant, like the clay under the hand of the sculptor. The student is also left by the instructor with a boundless field before him, which may either be studied more minutely in its parts, or more comprehensively handled as a whole. A far-off view which wins the eye, even if the student may go no farther, is the one we do best to leave in his memory.

Instruction in philosophy, rightly given, tends to retain the balance of the mind, and keeps within its control diverse tendencies, which would otherwise become conflicting ones.

Religious training almost always suffers from too narrow a purpose, and aims, even on questions of profoundest difficulty, at an immobile opinion. Such an opinion is more or less dead in itself, and comes to be held in a dead way. It is more complete and positive than the circumstances of the case allow, and far more so than the insight and convictions of the student justify. So far as such an opinion plays a defensive part, it does it by preventing inquiry and restraining thought. It is in its terms statical, and is statical in its action on the mind. True intellectual and moral discipline would seem rather to lead to a mobile opinion, one which distinctly recognizes the leading forces at work in the moral world, but which also discerns their changeable aspect; the number of ways in which they break over any measurement we may make of them; the various degrees in which they transcend our apprehension of them. A dynamical opinion arises from watching events, from viewing things in movement and in fresh disclosure; and, while it may show some hesitancy in a descriptive statement of what it sees, it gains an increasing discernment of the laws which determine what is and shall be. Religious instruction easily fails at this very point. It substitutes artificial ideas, or ideas artificially modified, for the spiritual forces that are working in their own way spiritual results under our very eyes. To escape logical abstractions, and see the living forces of thought in a living world, and to come safely under their action, is an attainment of so high an order that any instruction which can aid the student even a little in this direction is of inestimable value. Thorough training in philosophy can do more in attaining this result than any other branch in the college course; because in philosophy, more than anywhere else, we have to encounter both the windy collisions of logic and the sober flow of human experience; the coherence of systems remote from the facts, and the confusion of facts unenlightened by systems.

Instruction in philosophy is also supplementary to instruction in science. Science loves precision, and is able to reach it in many fields. It strives to secure this precision in departments far too complex to admit it. In doing this it may easily mar and waste knowledge, instead of enlarging it. In political economy, in order that its conclusions may be exact, it regards man as acting under the one motive of self-interest, and completely mobile under this motive. Neither statement is true. Men are prompted by a variety of feelings more or less inconsistent with self-interest, and they are inert in every variety of degree to this incentive and every incentive. In order to reduce history to an exact science, men overlook a large share,—indeed the larger share,—of the influences at work in it, and assign to secondary and more manageable conditions, — like soil, climate, occupation, — a very excessive influence.

Without in any sense antagonizing science, philosophy is fitted to be its true supplement. It brings before the mind fundamental facts too obscure and too complex to accept an exact or an exhaustive statement, and fatally crippled by a narrow one. The scientific tendency differs from the religious one in this respect. Science is tempted to cast away one fact after another till it reaches a remainder to which its measurement can apply. It makes its measurement the extent of knowledge. Religion constrains the facts in their full magnitude to come within its formulæ, and refuses to contemplate them in relations in which they are deeper, or higher, or broader than these formulæ. The statement stands for the whole, but the whole has become no more than the statement. Science reaches an exact expression for a small portion of our higher knowledge, and then speaks contemptuously and distrustfully of the remainder. Religion reaches a vague expression of great facts, and looks to the expression rather than to the facts for ever-renewed comprehension. We are speaking, of course, of science and religion in that partial attitude of each in which they oppose themselves to each other and to philosophy. Philosophy is the true supplement to them both, the true ground of reconciliation, by teaching the mind to ride the high seas of thought without knowing their exact depth, or breadth, or all that is in them, or all that is above them. It is the grand attainment of philosophy to take, with increasing ease and certainty and profit, great principles of intellectual consolation and practical guidance from the multiplicity of spiritual phenomena, as the mariner chooses single stars by which to guide his way.

If philosophy does nothing more for the student than to teach him to face the profound questions of life with composure, patience, and respect, believing that there is an infinite choice between conclusions, that all inquiry tends to the light, and that there is a safe path toward that light, it has given an intellectual and moral footing far beyond either dogmatic belief or despairing unbelief. At all events, he will escape mistaking flat and superficial statements for complete and final truths. It is worth as much to us to be brought face to face with things we cannot measure, but must in some way meet, as to be taught the simplest and clearest facts in knowledge. Conventional minds may run the circuit of life under conventional morality, regarded as a sort of superficial deposit in race development; yet in the progress of centuries this conventional morality will show itself amenable to the silent explorations of philosophy, and to those patient minds that are busy therein.

THE EDUCATIONAL DOCTRINES OF JACOTOT.

BY G. F. KENASTON, A.M.

IN considering the educational works, principles, and methods of Jacotot, we have not to do merely with the theories of a thinker in his study. Everything he says and advocates comes directly from his contact with pupils of all grades, and from his own individual experience as teacher and pupil. His most startling claims were made not on what *could* be done, but on what he had seen and done himself. When his books and pamphlets were published, there were many to attack his principles, but none who were familiar with his work disputed the facts and examples of his success.

Jacotot was born at Dijon, France, in 1770, took his degree of Doctor of Letters in the College of Dijon, at the age of 19, and was immediately appointed Professor of Humanities in the College. When the troubles of France arose, at the age of 22, he became Captain of Artillery, and after a short but splendid record, he was called to be sub-director, and then director, of the Polytechnic Inst. at Paris. After a time he was recalled to be Professor of the Method of Sciences at Dijon. Subsequently, in various colleges and universities, he was Lecturer and Professor of Pure and Transcendental Mathematics, Roman Law, the Classic and Oriental Languages. As a most prominent opponent of the Bourbons, on their restoration, he was obliged to leave France. In 1818 he was appointed by the Belgian Government, Professor of the French Language and Literature in the University of Louvain. He was noted from boyhood for his brilliancy, originality, and repulsion to the mechanical methods of the schools. He was willing to commit to memory passages from the authors, but despised learning the rules of grammar and arithmetic. His work in the school-room from the first was crowned with the best of results. His classes and lecture-rooms were always crowded with pupils, who caught the enthusiasm, zeal, and spirit of their instructor. His lectures merely gave the root-principles of his subject, then he invited his pupils to join in the discussion, give their ideas, and ask questions. He "opened the mine" and directed his pupils in their work by his suggestive method of questioning. Indeed, his whole work seems to have been tinged with the Socratic method. Questions were answered in the Yankee method, by asking others. At 48 he entered upon his work at Louvain. "His inaugural address," says one who was present, "was greeted with an enthusiasm like that which greeted Talma on the stage." He had taught for twenty-five years, but was unfamiliar with the Flemish and Dutch languages, in which his pupils spoke. He put in their hands a copy of Fenelon's Telemaque, gave them a few lessons in pronunciation, and asked them to memorize a few lines and get the meaning from an unliteral translation. A few recitations were spent in repeating the text and giving the idea in their own language, and upon the meaning of words. He then begins to question them (by an interpreter at first) upon the ideas, words, sentences, constructions, etc. They daily recite the text, soon reply and give the story of the book in French, and are referred to the book to correct their language and thoughts. New passages were added each day, and all carefully repeated; the questions grew more and more searching and complex, and soon they were writing compositions from subjects in the book, in words, style, and arrangement as fine as the best scholars of France used. Without any assistance from him beyond asking a few centralizing questions, by learning, repeating, imitating, and comparing, they not only had attained the phraseology, idea, and spirit of their author, but the effect was marvelous on their native powers. The spirit and principle here involved were thoroughly tested in other branches, and with equal success. He perceived that the philosophy of his experiment agreed with certain principles of nature and mind. He notes the method of study of the thinkers of the world, the methods these pupils have pursued, and the natural method of the mind, and sees a harmony between them. (1.) He sees that there is a natural way in which mind everywhere works when unrestrained. (2.) He recognizes that the germs and faculties of a perfect man are in the child, and the business of education is not to load but to develop these powers. (3.) He feels that, to do this well, it must be done according to a system; that learning a few facts from this book and a few from that, and wordy speculations from them, do not develop, or become weapons for further use. (4.) Pupils should learn to be guided by their own reason and judgment. After repeated and careful experiments with different classes and schools, he lays down certain *paradoxes* which turn the attention and rebukes of France upon him. The amazing success of his system in his own and his pupils' schools inspired him with the philanthropic aims of elevating the poor and ignorant by universal education. After the fashion of enthusiasts, he thought to break down the superstitious beliefs of a race by argument and proofs of his success. He sent forth books and pamphlets on educational subjects, the sale of which was immense. The works in my hands show a knowledge almost Shakespearian. To the disgust of the old schools, he gave to his system the name "Universal Education." Joseph Payne, of London (now deceased), the only man in England or America who has given his views a fair exposition, and who always spoke of Jacotot as his "master," says: "The system of Jacotot alone deserves the name of a system of education.* It embraces the advantages without the blemishes of other systems, and presents, in harmonious combination, all those elements that have ever been deemed by common consent valuable and effective in practical tuition. It is a possession forever."

We now turn to a brief consideration of Jacotot's principles. The very base, root, and soul of the system is found in his first proposition: "Learn something thoroughly, and refer everything else to it." He puts a model book in the pupil's hands, — they are to memorize a few sentences in advance each day, repeat the whole from the beginning, give the idea in their own words, and compare every lesson with what they have learned before. Every word, sentence, and paragraph, in their relations, must be explained, and their likeness or unlikeness to what was known before fully discriminated. Everything must be comprehended, everything remembered. Here is the key which, known in its very spirit, is to be kept contiuually in the mind, and to which everything is to be referred and compared. His idea in this is to train the innate powers of the mind, give facts, and thus form a vertebral column about which all its future acquisitions are to be organized. "Know one thing thoroughly, refer everything to it by reflection, and verify the reflections of others by that which you know."

The genius of Jacotot is well shown in setting forth his Paradox, *Tout est dans tout,*—all is in all.† This is illustrated and proved in every way, and shown to be of prime importance in every system of education. Without considering the metaphysical side of the Relativity of Knowledge, or the Association of Ideas, we aim simply to give its educational aspect. Men are everywhere and in all ages alike in many respects; they have largely the same feelings, hopes, weaknesses, and thoughts,—hence the products of mind everywhere have a union, a common connection by certain great principles interlacing and binding them together. The fundamental ideas in nature and man which give rise to all his motives, acts, and thoughts are in all his works, repeating themselves continually. One book contains all books, or at least contains the germs and roots of all branches of knowledge. Jacotot had pondered the great work of Fenelon until the spirit of it had grown into his being. He says: "I have been astonished at re-seeing in Fenelon all I have ever read. In all languages, in all works, Fenelon reappears on every page. If you ever find exceptions, they will engrave themselves on your organized knowledge, in their place, at last. The differences are easily seen, the resemblances and analogies can often be found only by close discrimination. Fenelon is a translation of Homer and Virgil; Bossuet, Cicero, &c., are in Fenelon; and the pupil who has caught the deep, living knowledge from his model book, and made it fixed and durable, will recognize them wherever he meets them." * Fenelon treats of man, nature, and phenomena; so do all books; and he who comprehends the spirit of Fenelon has entered the spirit of all books and learned many facts common to all. The great facts in man, knowledge, and history are constant. All books are commentaries and developments of ideas whose roots are embedded in one masterpiece. Learn, then, to refer all you read to a model book. Do this all your life. You can then retain your acquisitions, your knowledge will be organized, and you will save uncalculated time by never re-learning the same thing a dozen times. To grow into a child's mind the spirit of one good book is to give it the thread, the clue to all the sister branches on the great tree of knowledge. From a single passage in Telemaque, Jacotot gives his pupils an introduction to all the sciences; or rather by interrogations he leads them to the discovery, for he never tells his pupils anything. He who can extract all the knowledge from one book has not only well-skilled instruments, but has done much towards getting it from all books and subjects. *Tout est dans tout* is the *mnemonic* of the Universal Instruction. A fact or principle once learned must be ingrained into the child's mind (so easy to be impressed, and consequently so easy to forget), just as the first words, names, ideas, and scenes are, by constant repetition,—then they will be recognized in any associations. In this is the secret of apt words, phrases, quotations, and all useful learning,—the secret of the business-man and conversationalist, of the orator and the writer. That is a weak principle which would not have the child commit his first lessons to memory. It is as necessary for the child to memorize what the mind is to elaborate and build upon, as it is for man to eat what he would have nourish him. But the senses, intuitions, and memory had no sooner obtained the facts, than by his method the other faculties went to using them. This is the method of the child's mind in learning of nature and the beings about it. It is the method of professional men, authors, and scholars, to have one book or subject whose great principles are ever present in their minds, and to which they refer all their readings, comparing, discriminating, classifying, and adding. If men are but children of a larger growth, is Jacotot wrong when he would have us begin our education in the way we ought to carry it on?

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* "Je crois pouvoir conclure qu'aucune branche d'etudes n'est exclue de l'application de la methode."—*Report to Interior.*

† ———" History, with all her volumes vast,
Hath but one page."—*Byron* (*quoted by Prof. Payne*).

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* "The crowds and centuries of books are only the commentary and elucidations, echoes and weakeners of these few great voices of Time."—*Emerson.*

The model book must be of a general character, and suited to attract, instruct, and develop the intellectual and emotional faculties of the child. The power of one principle, when it becomes an active part of the mind, cannot be estimated, while fifty skimmed over may neither develop nor start a new germ. The proofs of the immense influence of one-book on human lives and on nations is overwhelming. I think it fair, for the illustration of the effect of one book, to use the Bible on its biographical and literary side. This, for four hundred years, has given the language, words, phrases, sentiments, rhetorical figures, illustrations, and eloquence to all classes; it has been the source of the motives, arts, sciences, literatures, and studies; it has filled the memory, stirred the feelings, and roused the ideas which are ruling the world. In fact, all realms of knowledge are studied with reference to this book, because its facts have so grown into the mind by repetition as to be the source of their knowledge as well as the nucleus toward which they tend. Make all the allowances you please for its sacred character, and then, Have all other books, I ask, aroused as much intellectual activity in the Christian world? Literature and history teem with the idea of "beware of the man of one book." In one sense, Homer made Greece and much of modern nations; for the great teachers of the world have not only incessantly fed on him, but have continually repeated him. Burke never laid Demosthenes aside, nor Dante, Virgil. Most of the great poets from his time, as well as Lord Brougham, Macaulay, and Carlyle, have been in close fellowship with Dante. "Shakespeare and the Bible have made me Archbishop of York," said Dr. John Sharp. Such illustrations are innumerable; nor are they less as regards the influence of one book on the mind of youth.

Goethe acknowledges the immense influence the Vicar of Wakefield had over his boyhood, The study of the "Fairie Queen" lit the genius of the boy Keats. Bentham says: "Telemachus was now placed in my hands. In my own imagination, and at the age of six or seven, I identified my own personality with that of the hero, who seemed to me a model of perfect virtue; and in my walk of life, whatever it may come to be, why, — (said I to myself every now and then),—why should not I be a Telemachus? That romance may be regarded as the foundation-stone of my whole character,—the starting point from whence my career of life commenced. The first dawning in my mind of the 'Principles of Utility' may, I think, be traced to it." Cobbett acknowledged he got his hard-hitting style from the repeated perusal of the "Tale of a Tub." Accustom pupils to the atmosphere of one pure book, and it will be an inspirer of their lives,—it will make their minds active instead of passive. "Those who have shone most as divines, poets, mathematicians, orators, sculptors, or painters were men who devoted themselves to one book, to one model."

Jacotot's close study of the minds of children, and their manner of growth, added to his practical experience, now leads him to enunciate another paradox: "The smallest children are capable of comprehending the most abstract terms and notions." While they may commit them to memory as wholes, they do not, of course, comprehend them until they understand the individual parts as related to each other and to the whole; but this children can do. His doctrine is based on the innate powers of the mind. It is the business of the first years of instruction to develop these faculties by bringing every one into exercise. The teacher is not to teach the pupil to generalize and reason,—these are common to all. Let the child as thoroughly understand the facts, and he will reason as well as man. Jacotot assigns the cause of the poor reasoning and judgment of men to carelessness and inattention to the facts, and want of training of the faculties. His pupils are first to make sure of the facts and recite *them*; then the teacher is to find out what they think and have to say about what they have learned. They are to make their own observations, compare these with the observations of others, and verify all by reference to the concrete facts and illustrations which are learned in the model book. "Does not," Jacotot asks, "the common error of believing that the child cannot reason, come from our confounding the *thinking*, which is natural to us, with the *expression*, which is an acquisition and a habit which exercise alone can give?" "I believe that the child Cæsar thought as Cæsar at the Rubicon. The little Cæsar thought of sweetmeats, and the great Cæsar of crowns, but the thinking is not different in kind, but in degree, in the two cases." While the faculty of expression becomes skillful, the natural reason often lies dormant for want of exercise. These faculties are in the child, and must be developed from within by its own exercise in discrimination, judgment, reasoning, and not by knowledge poured from a teacher's tongue, or swallowed from a book. In the first years you must sacrifice quantity to quality,—in fact, information to discipline. Teach here *mental habits*, which are to be the instruments of success in after-studies and in the world.

This leads directly to a fourth principle of Jacotot, which brought more ridicule upon him than the last. "It is necessary," says Jacotot, "to learn by your own effort, and without *any* explanations." It is not necessary to explain in order to teach. The pupil may be made to discover for himself everything requisite to be known. One principle discovered by himself is worth a multitude told him. By the word "teaching," Jacotot did not mean telling or simplifying, but "causing to learn," guiding them to reason for themselves. He is, here, close to nature's method. He says, when we learn our language no one explains, and we understand all without any other interpreter than the facts, which are a living translation of the word. "Shut the door," say they in our presence, and the act is a commentary on the phrase. Here words and facts are learned, reason and discrimination begin. This is the universal, infallible method because we follow it without a master, by our own intelligence, and with no other guide than necessity or curiosity, But when another satisfies this, the attention is distracted, and we learn only through the eyes of another, and often without reflection. So that, his studies finished, it is necessary to recommence his education, to strive to recall the knowledge he has acquired, to add that which he really needs, and to do this absolutely without aid; to seek reasons not with ear alone, but with every sense and faculty of his being. "It is not sufficient that I learn what my teacher thinks, but what I think of what he thinks." The teacher's business *then*, as in our schools to-day, was to explain, assist, make simple and easy for the children. Jacotot foresaw the consequences of all this. If you start them as trailing vines, take away their originality of mind, or let their normal faculties lie dormant by doing their work for them, what can you expect but that they will not remember what they learn, or develop their native powers? Who will explain the perplexities and problems of their daily life? All the business of life demands of men that they see, think, and know more than is apparent on the face of things. They must read between the lines and beneath the surface. Cases arise before men every day which demand investigation, and then the question arises, What do you know about it; what do you think, and why; what can you *say* and *do?* Thus Jacotot instructs his pupils. All the pupil's life is at the mercy of the first years. The thirst for explanations contracted now is an incurable malady; and so, in later life, we accept the guidance, investigations, and conclusions of others rather than undergo the trouble of rousing our undeveloped powers. "To say that a child or man cannot instruct himself without a master to explain, is to condemn the world to ignorance; it is to shut the sanctuary of the sciences; for if you have need of a 'cicerone' in entering, you had best renounce the voyage." All the good and useful things in the world, "in order to possess them," have to be won by your own solving, — why not teach *pupils* to rely on themselves? This is the way we acquire everything we learn without a teacher, which is the greatest imaginable part of our knowledge. A pupil's free, individual development will be hindered and blunted by a teacher who explains. Nature never explains.

Jacotot here saw the necessity of teaching vital, formative knowledge, but it was his important aim at this stage to seek the activity and gradual development of every faculty of the mind. Careless and superficial observation, memory and attention, and want of reflection in youth soon deepen into a habit. Superficial reading in the school is to-day the bane of keen intellect in society. Superficiality wastes time, takes away the purest enjoyments of life, for the treasures are not on the surface, and it blunts the edge of every faculty. To learn a thing, with Jacotot's pupils, meant business; for they never left a page until its language, thoughts, and their relations were their own. "We are learned not merely because we have been taught, — we are learned only when we have retained." No man saw more clearly than Jacotot the exact discipline that should be given to the perceptive, conceptive, and imaginative faculties; but he saw, *as clearly*, the great part memory had to play in an harmonious development of the man. I have the authority of some of the best educators, that students do not actually remember a thousandth part of the facts brought before them, and get but a small return in discipline. The process of education would seem to be to see how much information can pass through one's head and leave no track behind. Our schools produce but few good memories. Page after page of the world's classics are passed over, and leave nothing in the mind. There are not a few B.A.'s, not to say M.A.'s, who would have to refer to the catalogue to see what they studied in college. Much that is passed over has remained unintelligible to them; they saw not the scope, design, nor relation of the volumes; they cannot refer to their arguments, much less produce their spirit, ideas, and terms. "We owe all our knowledge to memory, for, without this faculty, the moment we closed our eyes on external nature the mind would be a perfect blank. We possess not a single idea for which we are not ultimately indebted to memory. Reason is essentially based on facts, and unless the mind possesses the necessary facts, there can be no act of judgment, no connected chain of argumentation. No great genius ever existed without memory, nor without being indebted to memory for nearly everything which stamped his productions with eminence." People are continually telling of their poor memory; but, says Jacotot, children all have memory, and an equal memory at first. Poor memories are the result of carelessness, inattention, laziness, disinclination, and want of exercise. We all remember the things that become really known to us.

His experience and success with all classes of pupils, and his desire to see the vast ignorant masses receiving the blessings of education, led him to utter another conclusion still more startling: "All human beings are equally capable of learning, —have an equal intellect." This brought the scorn of the court, professional men, and upper classes upon him with a fury. The more they said and wrote, the thicker came the facts, arguments, and examples from his vast mind. He published an educational paper (" Intellectual Emancipation ") to vindicate his views. For twenty-five years Liberty, Equality, and Reason had been the roots of all the turmoil in France. Jacotot asserts that God has given as much intellect to the lower classes as to the higher, to women as to men, to the Englishman as to the Frenchman. These thoughts were not only strange to them, but repugnant. They hurled at him the argument that woman's equality would destroy the home, and the equality of the lower classes would destroy the government. The Germans look at this assertion and call him an enthusiast, and then attach his excellencies to the few exaggerated principles of their countryman and call it Pestalozzianism. The English say no one believes it, and it put his system on a weak foundation. Although I do not believe it had the least thing to do with his system of education, yet, as it is my aim to give a fair representation of his doctrines, it is necessary to see what he meant by it. Americans can believe almost anything of this kind who have seen the crooked road up to the presidential chair scaled by a rail-splitter and canal-boy, the honors of the world paid to printer and farmer boys, to blacksmiths and shoemakers, and even to those for whom the names 'dunce' and 'poverty' seem to have been the chief passport to honor. Everything was different in France in 1824. Their schools were taught on the principle of the natural inferiority of the woman and the lower classes.

M. Duke, of Levis, says: "Since the Universal Instruction rests upon the opinion of human equality, and this opinion is absurd, it is necessary to banish it." Yet he, with others, said to Jacotot: "Do not direct your schools after this opinion, and we will ask a great pension for you, adopt your method, and make you counsellor of State." "No," said Jacotot; "we shall direct our pupils after the opinion of the equality of intelligence. Your system of education is stultifying and brutalizing to the social order." He asserts, by his paradox, that there are certain lots and forms of activity which are alike innate in all minds. All (there are the exceptions of idiotic, etc.) come into the world with the same organized faculties, and the differences among men arise from the circumstances of their development. "The native equality itself maintains an inequality acquired by circumstances." We have not the same tastes, aptitudes, desires, and dispositions,—the same will; but the smallest child has the same intellect as the man Archimedes. The artisan and farmer are the same thinking and feeling beings, have originally the same virtues, the same good and bad qualities, as the men of the academy. "The will makes the difference between men." "Lead your pupils to develop their will, to conquer themselves, to make reason the master." If you believe with Socrates, that "the thinking man can do all things"; with Buffon, that "genius is in patience"; if you think with the ancients, that "*Labor omnia vincit*"; if you suppose with me, that man can conquer himself, —that taste and interest and will change, you will not teach your pupils as if God had made them for menials and sticks, and had given them less intellect than He has to genius. Your theory does not give spirit to your pupils, and they have need of encouragement. Will, acquired by the efforts of reason, is a virtue, and this it is the teacher's duty to nourish. The will ceases to command where the need is satisfied, so then the intellect ceases to act. His followers found the great lever of instruction and management in saying to their pupils that they did not lack intellect and memory, but will, courage, and patience. He would discipline the will by growth of purpose, close attention, and the animation of noble examples. "I have learned," he says, "that the fault of attention and indolence suffices to explain the difference between men." Had the great orators, Demosthenes and Mirabeau, more genius than their adversaries? he asks. The history of Mirabeau's life attests that he had not, but the circumstances of his self-education made him what he was. We judge of intellect by the effect or product; and nearly always a ruling emotion, disposition, or taste is the cause of our talents and success. Then, since all men differ in taste and inclination, it is as if they differed in intellect.*

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* Helvetius had declared this proposition, and Jacotot says it was the belief of Corneille and Newton.

Jacotot had proved to his satisfaction that explanations were wholly unnecessary; that nothing is of permanent benefit to pupils except what they obtain by the active use of their own faculties, — in fact, everything else weakens and stultifies; and that the part of a teacher is not *to pour in*, but *to draw out*. He hates the idea of learning a language with grammar and dictionary; it is contrary to nature, contrary to the way of learning our own language; it is mere memorizing and patching together words; it is working on the surface when we ought to work from the idea to the expression. He disregarded all rules, and would have his pupils retain in memory no abstract terms and generalizations of which they did not know all the concrete factors. Wishing, now, to prove the efficacy of his system to all, he offered his services, gratuitously, to the poor who wished to be instructed by his method. Young and old came in crowds. Many wished instruction in German, music, and painting. He says: "I was ignorant of these branches, and yet I taught them, or very many learned them with me remarkably well." To the crowds who came to learn his processes, he said: Here are my pupils and teachers, and those who have been with me; you can test, examine them as you please. The master is to do nothing for his pupils. The method is not a method of the teacher, but of the learner. It is in the nature of the human intellect which has been created capable of instructing itself, alone, and without any one to explain. There is nothing to examine or judge in the method, but you can examine the results. The teacher's duty is to guide the pupil's activity by searching interrogation. Memorizing was not continued long, but intense thoroughness, repetition, and explanation by the pupil were the means. While the marvelous results are well substantiated, even by his opponents, yet one can but believe that the real facts are exaggerated. M. J. Kinker, a member of the Department of the Interior, France, after a most thorough examination into the character of the method and its results, and the schools under Jacotot and his pupils, reports to the Department, September 8, 1826. His paper gives a special report on Mathematics, Latin, Greek, German, and French, Music and Painting, and shows such results as almost to carry skepticism with it. The limits and objects of this paper forbid any extracts. They seem to me to justify Jacotot's assertion, that "by this method we learn a language more quickly and better than in the country where it is spoken." The cry now is, Jacotot is a genius, and has taught in the Polytechnic Institute at Paris, He now sends forth another paradox, aimed especially at the poor and ignorant masses: "Every one can teach, and, moreover, can teach that which he himself does not know."

The word "teach"[*] is here used in its original sense, "to cause to learn." Jeers now came from every class, although he repeatedly tells them, they must thoroughly understand their business and the nature of the mind of the child, in order to instruct in what they do not know. This says to parents, "You can teach your children if you cannot send to school." I shall give a few of his words to parents, not merely to illustrate this paradox, — for no one ever saw more clearly the necessity for highly qualified teachers than Jacotot,— but because it throws light on his whole system. Every man, poor and unlearned as he may be, can put Telemaque, for instance, into the hands of his son. Suppose he has learned to read; so much the better if by our method. He can require his son to learn a paragraph, and recite it every day. He can require him to tell what he has learned in his own words, and what new idea he has found. It is necessary that he should say something on what he has read or seen, even if the remark is not judicious. The father must cause him to spell correctly every new word, and give the meaning; to recite from the beginning, each day, with a little advance; to fix his attention upon what he recites by that continual question at the gate of all the world, *Qu'avez remarque?* The pupil will know perfectly, at the age of eight years, for example, the first book of Telemaque. He now begins the second book, going through the first twice a week; and the father asks, What have you read; what can you say about it; is there anything here such as you have seen in the first book? Soon he begins to write the lessons, and then to write what he thinks about them. He now puts an arithmetic, and soon other books, in his hands. While the pupil makes all the explanations, the father can use his utmost ingenuity in interrogating him. The father must see that the pupil makes every step ineradicable; repeats *sans cesse*, observes carefully, is accurate, compares the new with the old, makes his own conclusions and explanations, and verifies all by reference to his book. When asked how this method agreed with that of Socrates, Jacotot replied, "It is the method of Socrates, with this difference, — that Socrates questioned in order to instruct, and we question to be instructed. In the method of Socrates, the teacher *must* be wise; in our method, an unlearned teacher will answer." This was tried with eminent success by many families in Belgium and France.

He has another maxim which seems particularly applicable to some extremists of to-day: "We cannot instruct by amusing the child, but it is necessary to interest." Children cannot acquire solid instruction and discipline by merely being amused. I do not believe this method will be satisfactory. The success is as ephemeral as the pleasure which produced it. They think to engrave truths upon the mind in ineffaceable characters by amusing; illusion! repetition is unnatural to pleasure only so long as novelty seduces us. He substantiates this from his never-failing sources,—nature and the great scholars of the world. But interest, that infallible searcher of the human heart, rules all our desires, applications, often our sentiments, and is the originator of all our actions; and when aroused, the begetter of interest in other things. This was the lever in his method. Its success in family and school argues that the method itself begets interest and attention.

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[*] The root is, in German, *zeig-en;* in A. S., *tæc-an;* in L., *dicere* and *docere;* in G., *δείκνυμι*, and means "to show, direct, lead the way."

[To be continued.]

BOOKS CONSULTED.

Langue Maternelle et Mathematiques. *Jacotot.*
Science and Art of Teaching. *Joseph Payne.*
The Study of Languages. *C. Marcel.*
Lectures on Science and Art of Teaching. *W. H. Payne.*
Education as a Science. *Bain.*
Geschichte der Pädagogic; Vol. III. *Von Raumer.*
Geschichte der Pädagogic. *Carl Schmidt.*
Educational Reformers. *R. H. Quick.*
Emile. *J. J. Rousseau.*

THE UNCONSCIOUS IN EDUCATION.

BY JOHN EDWARD MAUDE.

[Continued from last No.]

BUT, on the other hand, it must be noticed that, to fix an impression deeply, requires more time and trouble than to fix it slightly; that the occurrence, in no matter how casual a fashion, of an idea will make some impression on the mind, while, if it be desired to fix that idea more deeply, so that it may reach consciousness, special attention must be given to hammering that idea in more deeply, to the neglect of all the others. Thus the work of making ideas penetrate into consciousness is a slow process, while the unconscious acquisition of ideas in any fashion, just as they come, is a very quick process. The mind may be compared to a target with a soft surface, at which the teacher throws ideas like pebbles, with the object of making them penetrate as deeply as possible. If he throws them by handfuls as quickly as possible, he can soon fill the target; but if he must take pains to hammer each one in more deeply after he has thrown it, his work is laborious and slow. Unconscious acquisition is infinitely quicker than conscious acquisition, though the latter is, on the whole, more permanent than the former. But the mind has within itself a power of bringing unconscious ideas into consciousness: the interest that the mind has in matters which relate to any unconscious idea that it holds will often bring it into consciousness, and the more unconscious ideas the mind has, the more and deeper interests does it have. Thus it appears that it may often, and even in general, be better for the teacher to be content with placing ideas in the mind of his pupil as fast as possible, and leave to the pupil's mind the task of deepening what impressions it may take interest in,—especially, too, as such exercise will discipline the pupil's mind in the best of all possible ways.

But unconscious acquisition has more than the advantage of quickness over conscious acquisition. As has been shown, the mind has a power of turning unconscious knowledge into conscious as its interest impels; and that the very increase of unconscious knowledge increases the interests that the mind has, both in number and intensity. Besides this, conscious acquisition has not, perhaps, so much the advantage of permanence as might be supposed. Every nerve-process that has ever been made in the brain has an effect upon all other nerve-processes, — that is, upon all the thought of the mind to all time. Every cause must have an effect, and every effect becomes another cause, which must have an effect on all other effects to eternity. We may suppose nerve-process *a, b, c, d, e, f*[*] to be as faint as you please, and its corresponding idea in the mind buried deep in unconsciousness; but even if it fade out of the brain altogether, the fact that it once existed can be proved by the modifications that it has made in the nerve-processes that are afterward made where it once was; that is but saying that a cause can be traced back through its effects. An idea may, therefore, very well fade out of consciousness, or grow so faint that consciousness may, time after time, find it impossible to recall the idea; but the effect of the nerve-process that once existed in the brain to represent that idea must always persist. When we are unable to recall an idea to consciousness that we were once conscious of we are said to forget, and in that sense the mind does forget; for we are often unable to recall to consciousness ideas that were once before it. But if by "forget" be meant that the mind absolutely loses all trace of ideas that it once had, so that it can, under no circumstances, recall its ideas, there is no such thing as forgetting. The mind always retains traces or effects of all ideas that it ever had, whether it had them consciously or unconsciously.

Since this is so, every idea that the mind ever had, conscious or unconscious, must have its effect upon our present thought. We form our judgments, indeed, under the guidance of all our past knowledge, even though we can say, in the common sense, that we have long ago forgotten it. It is here that the usefulness of unconscious knowledge appears: it forms a groove in which our thought can run and keep on the right way. Thus the experience of my whole life lies unconsciously in my mind; I do not call it all up to consciousness every time I make a judgment. I can make a judgment often very quickly, and very little of the knowledge by which I am guided in the making of that, or any judgment, comes to my consciousness while I make it. The acquisition of unconscious knowledge is therefore of vast importance, and is a permanent acquisition. The permanence of conscious acquisition consists merely in the fact that consciously-acquired knowledge can remain for a time capable of being recalled to consciousness, and therefore enlarges the conscious, which is the higher and characteristic, life of man.

This unconscious acquisition of ideas proceeds by observation through the senses. The method of teaching by "object lessons" is one method of using the power of the mind to acquire unconsciously. All life is an object-lesson, and a large part of what it teaches us comes to us, we know not how. When a child is born, we may imagine that it tries to conceive what kind of world it is about to enter. Myriads of kinds of worlds are possible or conceivable. But which is to be the kind that it is to enter? The child's nerve-particles are in a perfect chaos, with not a nerve-process or an idea formed, but only a general disposition of its nerve-particles, which is to modify the nerve-processes and the ideas that it is to acquire, and to thus give it a distinct individuality in addition to the individuality that the peculiarity of its experience will furnish. With this indifference to start from, the child receives impressions from the outer world with every sensation that it feels. Every glance shows it a multitude of things which might have been different for all it knows, but which, being as they are, and the child having no different experiences to compare them with, make impressions upon its mind that are, for the most part, received unconsciously and without surprise. If the child had any remembrance of any other kind of world with which to compare this, it would see much to wonder at and would be conscious of every new and strange experience. But, as it is, nothing is new or strange to the child; everything makes its impression on the mind; and, because there are few contrasts, few ideas reach consciousness. It is said that a child learns much more in its first year than in any other year of its life, and almost all that it then learns must be acquired unconsciously. These, rather than any other impressions, are formed in the mind, and the mind receives them without challenge or comparison, because it has none other to compare them with. Consciousness is only possible in comparison.

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[*] See diagram, No. IV., page 407.

In this unconscious way the child learns the fundamental laws of the world and of life; it gets the idea of this particular world rather than of any other; it only becomes conscious where it sees contrasts and makes comparisons. And this unconscious acquisition continues all through life. I learn to think this rather than that,—but never thought that there could be any "that"; when I become conscious of a "that," I become conscious of my thought of "this." Thus most of my unconscious knowledge is a negative rather than a positive gain: by it I am prevented from going in any one of an infinite number of ways except this one. My unconscious knowledge furnishes me with bounds within which I move, which prevent my wandering.

It is in an unconscious way that we get especially all our ideas of space and time. The so-called innate ideas are either innate or unconsciously acquired. A child sees all things in the same perspective that the artist uses, and would know there was something wrong about a picture that violated the rules of perspective, though it consciously knows nothing whatever about perspective. How easy it is to learn music or dancing in an unconscious way by practice, and how hard it is to learn every step consciously by conscious acquisition of rules?

Besides unconscious acquisition proper, there is also a sort of acquisition which may, for convenience sake, be classed with it, though it is not unconscious acquisition. We may learn phrases which are pregnant with meaning, but which we do not at all understand when we learn them, but which furnish a sort of receptacle for our experience, when it comes, which fills up the phrase with meaning. Thus, as children, we may learn the aphorisms of Bacon or of Shakespeare, the maxims of Larochefoucauld, the rich verses of the Bible, without at all understanding them, since our experience is too limited. Thus we may learn by heart the phrases, "Knowledge is power;" "A bird in the hand is worth two in the bush;" "'Tis an ill wind that blows nobody good;" and not an atom of their meaning may penetrate our minds, either consciously or unconsciously. But when some experience of ours occurs to illustrate their meaning, that meaning flashes upon us, and the phrases serve as a sort of rack in which to classify our knowledge. The possession of the phrase acts as a sort of labor-saving machine to furnish us with the results of the wide experience and deep laborious thought of thousands of wiser men than we, by the help of very little experience or thought of our own. The meaning of the phrase is seen by the light of the occurrence in our experience, and the relation of that experience to all our experience and to all life is seen by the light of the phrase.

But that is not strictly unconscious acquisition. It is acquisition by means of phrase-learning. Thus it appears that even the learning of what at the time of acquisition is but a jingle of words, is far from profitless if only the words have deep meaning. They will acquire meaning just at the moment when the knowledge of their meaning is most needed: at the time when some occurrence in the experience of their possessor gives him an interest in knowing their meaning. Do we not all know how precepts and maxims will rush to our memory when any occurrence in our experience illustrates their truth?

It will, however, be noticed that, like all constantly-repeated experiences,—as, for instance, the ticking of a clock, which has been before referred to,—maxims, by constant repetition, will almost lose their meaning which was once vivid to us. How mechanically the old churchman repeats verses from the Bible which, at his conversion, or when some illustrative experience befell him, was alive with meaning? The oft-repeated precepts and wise sayings that we were once delighted with have all grown meaningless by constant repetition. Thus do words lose their meaning as habit begets a nerve-process which mechanically produces their pronunciation. How seldom do we now think of the literal meaning of such words as "nevertheless," "rather," "blacksmith," and the like? When words with a meaning are used as the names of persons, we use those words when speaking of the persons to which they apply without once thinking of their meaning, though at other times when we use those words their meaning is kept in mind. Thus the names "Baker," "Whitehead," "Townsend," &c., are all meaningless to us. It is said that, when at the Oxford races the students try to urge on their favorite crew by yelling loudly and constantly, "Christ!" "Christ!" the feelings of of spectators who do not use the word so frequently are often severely shocked.

But we will turn from the consideration of the methods of acquisition, which may be considered as a partial study of methods of instruction, and turn to consider memory, in the discussion of which we may be considered to be engaged in a study of methods of education.

It will be almost obvious from what has been said, that the word 'memory' may be regarded as having several meanings. In its ordinary and its proper meaning the word signifies the faculty of bringing ideas to consciousness which have already been before consciousness. But we have already said that ideas may be not only acquired and held by the mind unconsciously, but may be used unconsciously. To use any idea unconsciously in any particular operation of mind to which that idea especially applies, that idea must be selected from all the other ideas in the mind. This selection, therefore, shows that ideas may be more than unconsciously retained in the mind; they may also be unconsciously selected and used. I therefore use a phrase to stand for this unconscious retention, choice, and use of ideas which may seem to be self-contradictory, but which may be considered as a term *sui generis* having a particular meaning here, but no meaning elsewhere. I use the phrase "Unconscious Recollection," or "Unconscious Memory."

With this preparatory definition, I will classify the kinds of recollection, which I hope the reader will permit me to call the kinds of memory, all the while bearing in mind what I mean by unconscious memory.

As there are two ways of acquisition, so ideas may be classified into two classes in some sort corresponding to them, according to the ways in which they may be remembered.

A. Ideas which have been once acquired may be remembered UNCONSCIOUSLY, and may then be of two kinds:

1. Ideas which were acquired unconsciously, and have never been before consciousness, may be recalled and used unconsciously.
2. Ideas which have been before consciousness may be recalled and used unconsciously.

B. Ideas which have once been acquired may be remembered CONSCIOUSLY, and may be of two kinds:

1. Ideas which have never before been before consciousness may be remembered consciously.
2. Ideas which have already been before consciousness may be remembered consciously.

Besides these four classes of remembered, or old; ideas there are in the mind the two kinds of new ideas,—those that are acquired unconsciously, and those that are acquired consciously.

These four classes of remembered ideas are those with which the art of education deals. Education has for its work the task of bringing out to consciousness ideas that are already in the mind. The peculiar province of education may, therefore, be considered to be the two classes under *B*. Education must bring ideas up to consciousness which have never before been conscious, and revive ideas that have been before consciousness. This operation is performed by placing ideas in new relations or contrasts to each other; every new relation that is seen makes the idea more valuable, and, so to say, increases the mind's consciousness of it.

But we have already seen that ideas may be not only held, but used, unconsciously; and that such ideas may not only be unconscious because they have not been imprinted deeply enough on the mind, but because they have been imprinted so deeply and so frequently, and have become so familiar, that they have passed through the conscious state, and are held and used by habit unconsciously. The so-called *a priori* ideas, especially those of space and time, are thus unconsciously used by the mind in almost every thought and in every action. We act according to the laws and customs of our country, just as we learned those laws and customs,—in a perfectly unconscious way; it is only when we go to a foreign land, or talk with a foreigner about the strange laws and customs of his country, that we have something with which to make a comparison, and the comparison rouses us to a consciousness of laws and customs which we have obeyed from our youth up, unconsciously. The religion of a people is learned by the children of that people unconsciously; it is only when some reformer comes in to arouse their minds to a knowledge of another and a better religion that they become conscious of their beliefs. The reformer himself is only able to become conscious of the peculiarities of a people, if he is an ordinary man, by comparison with the peculiarities of another people; or, if he is a genius, by comparison with the abstract truths which only his mind is able to see. Thus nations, as well as individuals, have unconscious ideas, which form their peculiarities. Rulers, judges, legislators, priests, and common people, all use the customs of their land in their thought, and, by the guidance of that unconscious thought, settle all questions and make all judgments. These unconsciously recalled ideas modify conscious thought, and thus play their part in all our thinking.

But perhaps the most peculiar class of ideas in our classification is class *A*, *2*: Ideas which, though they were acquired consciously, or have at some previous time been before consciousness, are held by the mind only unconsciously, and are used unconsciously. Such ideas, according to our common notion, are said to be forgotten. We are supposed to have lost them, and of course they are, therefore, supposed to afford us no good. But this class of ideas has given almost every one much trouble,—for some of them, which we had supposed were long forgotten, often turn up again, under the spur of some occurrence in our experience, or when, as in drowning, we are under strong nervous excitement; and ideas which we are certain that we know do not come up when we need them. On these accounts a lively discussion has arisen on the question whether the mind does or does not forget. The mind does lose ideas from consciousness, but it still retains them in unconsciousness; it loses them so that it actually *does* not recall them to consciousness; but does not lose them so that it *can* not call them to consciousness.

All the knowledge that we have ever consciously acquired, except the one idea that we are now thinking, lies in our minds unconsciously. Read a book, and when you have finished it, tell how much you know of it. Yet, though you may not be able to recall a single idea that you have just read, the book may have furnished you with thought that will modify all your future life. At certain junctures in your life the teachings of that book may help you to decide upon the right course, even though you do not consciously recall them.

The results of our own reflection, which we may have thought out with vast toil and trouble, and which were, therefore, vividly present to our consciousness when we first searched them, sink, after a while, into unconsciousness. But they do not therefore cease to be useful; on the contrary, they form part and parcel of our character, and influence us in all our actions. Very much of the influence of this unconscious knowledge is of a merely negative character, determining what we shall not do, rather than what we shall do. A child learns after a little experience, that he cannot lift himself by his own bootstraps, and he never again tries to do it, although he never once consciously frames for himself the rule that one cannot move himself without a fulcrum. Thus also we often try to recall the name of a person, or of a place, and the name seems to come even to our tongue's end, but will not come out. We know what we shall *not* call the person or place; we know that it is *not* Waterloo, Jersey, James, John, Mary, or Jane, but we do not know what it *is*. "I could tell the name if I heard it," we often say.

How often, when people read the striking sentences of a good author, do they say, "That is so," although the thought never consciously occurred to them in that way before. The phrase puts the old idea in such a new form that it seems like a new truth, and perhaps the new and striking form for the first time brings to consciousness what we have all along known and used, but known and used unconsciously. There are people who do not like, in their egotism, to learn anything, because everything they read seems to be but a repetition of what they knew before. But their reading serves to bring to consciousness and usefulness what they only knew unconsciously. Conscious knowledge can be used for the instruction and benefit of others, and thus serve to make us great; for people only know us by what we give out, not by what we hold; while unconscious knowledge is essentially selfish, since it benefits only the possessor of it. A man may be acquisitive, a thinker, a scholar, if he has a vast amount of unconscious knowledge; but to be a worker, to be originative, productive, to be useful, he must have conscious knowledge.

Perhaps, therefore, the chief business of education should be with that class of ideas that we have placed under *B*, 1: Those ideas which, having been hitherto held by the mind unconsciously, can be and ought to be brought to consciousness. This should by all means be the chief business of education. It is very seldom a profitable business for an instructor to aim at bringing ideas directly from without the mind into the innermost recess of mind where consciousness lies. It is the proper business of instruction to so present ideas to the mind's gaze that it may see them easily and quickly, that they may attract its notice, and that it may see them in their relations to each other; but no effort should usually be made to pound ideas into consciousness. Quantity, more than quality, of work is what is demanded of instruction, for, in this case, quantity means quality.

But it is quality of work that education, as distinct from instruction, should aim at. Education should try every conceivable means to bring out of that store of latent knowledge in the mind, which I have called unconscious knowledge, those ideas which it desires the pupil to know and understand. Its first aim should therefore be to interest the pupil in the matter in hand. And the most likely way of interesting him in an idea is to present it in many forms, each peculiar and striking, so that the relations of that idea to others may be distinctly seen, and the locus and limits of it firmly established. Comparison is the creator of consciousness.

It must also be noticed that it is the work of education to bring to consciousness *all* ideas that lie in the mind unconsciously; for not only ideas which have never been before consciousness, but ideas that have, lie in unconsciousness. Education will find its duty to be very often the revival of ideas which the mind has before been conscious of. And that revival may be made for various reasons: if the idea be revived to be seen in merely the same way in which it appeared when it before appeared to consciousness, the revival is not useless, for every such repetition of an idea fixes it more firmly, so that it becomes more and more easily revived. But the aim of such recollections should also, and, perhaps, chiefly, be the presentment of the revived idea in a new aspect, in new relations, by new illustrations and comparisons. Thus the mind's consciousness of the idea is increased. For not only can the mind be simply made conscious of a new idea, but that consciousness can, by the knowledge of new relations of that idea by comparisons with other ideas, be increased until the mind is most vividly conscious of it in all its relations. How extensive this work is may appear when we remember that there is probably not a single idea which we know in all its relations, and of which, therefore, our knowledge cannot be increased. The knowledge of the relations of ideas can only be made to appear by comparison or contrast, and thus comparison is seen to be, not only the creator, but the cultivator, of consciousness.

Our discussion would not be very important if it did not lead to some practical results. Some practical results of the principles so far discussed must, however, have already suggested themselves to the thoughtful reader. If there be any truth at all in the philosophy of mind just discussed, our present system of education needs some revisal.

It is very evident to any reader of the foregoing pages that the only kind of acquisition that our present system of education takes into account, is conscious acquisition; and that the only kind of memory that it cares for, or gives credit for, is conscious memory. Of the four classes of remembered-ideas that we have mentioned, the last (*B*, 2) is the only one for which our present system of education cares. Recitations and examinations take no account of any acquisition, or of any memory, except conscious acquisition and conscious memory. The pupil knows far more about unconscious acquisition and unconscious memory than the teacher does, and he groans because he knows that examinations do him an injustice, though he is unconscious of precisely what that injustice is. Teachers take no account of the fact that a pupil may read a book through and gain great mental benefit from his reading, even though he is unable to repeat a single idea that the book contained.

Examples of this unconscious acquisition may be furnished much more readily by pupils than by teachers. When a person becomes a teacher his knowledge becomes largely conscious; all the knowledge that he wishes to communicate to his pupils must be present to his own consciousness, or he cannot communicate it; for, as we have already said, we can only give out those ideas that we are conscious of. The teacher therefore forgets how he himself learned the ideas that he teaches. But it would be better for him and for his pupils if he could go through the process of learning in his own mind what he is teaching. We are often told that a man may know too much to teach, and often hear that a teacher who knew just enough more than his pupils to keep his own studies ahead of theirs, has made a brilliant success. I have heard of a man who learned how to read while teaching his pupils to read.

A teacher cannot know how to teach unless he knows how to learn The mind has a most marvelous power of receiving impressions, if it be but allowed to receive them in its own way. Every glance by which we take in any new experience molds our minds and turns them to fit the world that they are to live in. Men, like all animals, are formed by their environment, and minds are thus formed as well as bodies. The mind seems to demand a preliminary unconscious possession of ideas before receiving them into consciousness, and it selects out of the mass of its unconscious ideas for introduction to consciousness only those ideas in which it is interested. But our system of recitations and examinations proceeds on the supposition that the mind gets no good except from what is perceived by consciousness, and is retained within easy call of consciousness. Our system drives into the presence of consciousness, by means of all sorts of appliances and devices, a heterogeneous mass of ideas, in most of which the learner has no interest whatever. The proper system would place as many ideas as possible of the most useful kind before the pupil's mind, and let the consciousness of the pupil pick out those ideas which are of most interest to it. The mind will learn quickly and well what it is interested in, while it learns very slowly what it has no interest in, and easily forgets what it so learns. However, the mind of the pupil should, of course, be guided into the most important roads, and be prevented from straying aimlessly about in a range of by-paths.

For example, suppose a pupil who is beginning to study a certain period in history, and is deeply interested in the study, has the guidance of an ordinary good teacher. The teacher puts a text-book into the pupil's hand, and gives him stated lessons and examinations at regular intervals. The boy learns his lessons well, passes first-class examinations, and leads his class. How has he done it? He has conned each lesson several times, has learned the dates of every event, genealogies of every person, the place where every event took place, and has, if he is a wise pupil, tried to relate each fact to every other. That is, all his study, all his repetition of fact after fact, has had but one object,—the fixation of the facts upon his consciousness so that he could repeat them on examination. The comparison of fact with fact has been made for the purpose of increasing the consciousness of each fact so far as repetition and contrast could do it. But it will be noticed that in this process of acquisition the unconscious powers of mind are given no credit; that is not accounted learned which the learner cannot consciously repeat; and that the aid of interest, the most powerful of all helps in acquisition, has not been even asked for. Everything was learned by mere repetition; the mind was forced to learn everything that came before it, and push everything into consciousness, no matter how uninteresting. There was no telling what would appear on the examination-paper, and therefore everything must be learned.

But watch the last boy in the class. He knows nothing when called upon to recite; he utterly fails on examination; he cannot give a single date, and some of the facts mentioned he has not even heard of. Why is it that, after graduation, while the first boy becomes hidden in a school as a teacher of boys, the latter shines in the world as a teacher of men?

The reason is that, while the first boy was grinding, cramming everything into his consciousness, the latter was content with absorbing a vast quantity of knowledge, not very definite, but capable of being made definite when interest in any particular part of it made it so. The second of the two boys has read, rather than studied, his history, but everything that he has read has made an impression which is easily revived and deepened when a more particular study is made of the results, or when anything occurs to illustrate that unconscious knowledge. And when, while reading his text-book, he came across anything that interested him, he looked up the particulars of the matter, got its relations to other facts of history, and got them quickly and well because he was interested in getting them. But neither his unconscious acquisitions, nor his knowledge that was not found in the text-book, gets credit on the examination, and he fails there.

I do not say that many "last boys in the class" are of this kind, or that exactly this method of study is the best; but I do say that very many students who are far from leading their class, or from shining in school or college, do work of this very kind which is immensely useful in the world, and that this case, chosen for illustration, serves its purpose as a reminder that there are other methods of study besides the conventional school methods.

The learning of the "first boy" at school or college is generally, though perhaps not always, very limited. It has been confined to certain lines, and includes only that which is likely to appear on the examination paper. It is deep, particular, fine, rather than broad and useful. For this very reason it fails to be of as good quality as the more superficial, but wider knowledge of the ambitious men below him in rank, for it fails to find as many relations to other knowledge as it would if it comprehended a greater range of ideas. Therefore, even if examinations were a fair test of the knowledge of the textbooks studied at school, — and they never are, — they would form no gauge whatever of the general knowledge or ability of the pupil. All that high rank at school does for a boy is to raise a fair presumption that he is not a fool.

It is here that we find the explanation of many strange paradoxes. For example, why is it that the number of men who are distinguished for their intellectual ability and works, and have not been educated at any college, is very rapidly increasing? Such men often almost despise college-training, and the acquisitions of such men are wonderful, although, unlike college students, they have been unable to give their whole time to study. The reason is, that the man who educates himself can be free to acquire as much as he pleases unconsciously without the fear of an examination which will give him credit for only his conscious knowledge; and that he can have the enormous aid of interest in his work, since he can follow out any particular line of study that may interest him. If he be studying English history, for example, and happen to become interested in tracing the line of kings and the manner of their succession, he can devote weeks to the work of tracing the maze through without any fear that the knowledge thus acquired "will not be asked for on the examination paper." If a student at school takes such a course, he is devoting much time and labor to the acquisition of knowledge that will do him no good on examination, while another scholar in his class, with but a tithe of his ability and with but a small amount of study can, by judicious choice of such work as he knows will be asked for in the examination, take a high rank in the class.

But it must be plain that when a student leaves his school, the world will demand knowledge that has been acquired by following special subjects through from beginning to end. The world may often want to know what has been the rule in the English succession, and what were the exceptions to that rule; but it wants few men to write an account of all events in English history. School methods are therefore entirely opposed to the world's method, and to nature's method, of acquisition. Examinations never will, and never ought to be, a test of what students know. Every mind has its own interests, and can acquire most quickly by studying what its peculiar interests lead to. All that should be done in the way of compulsion is to keep the mind to its work, whatever work it chooses to do, and to keep the mind in the most important channels and in a consistent course. Nature undoubtedly intended that, while there should be a substratum of similarity between and underneath the knowledge of all men, there should also be a peculiarity that should distinguish the mental acquirements of each one of us, and that each of us should supplement the knowledge of all the rest of his fellows with his own, so that the combined judgment of a mass of men should be almost perfect. To this end each man has been endowed with a peculiar cast of mind, and nature's purposes and the good of mankind are alike best served by allowing the peculiarity of each mind to develop itself in its own natural way. Examinations certainly do not accomplish any such result. They compel a number of minds, each by nature endowed with its own peculiarity, to learn what the teacher prescribes, and to learn a vast mass of uninteresting knowledge merely to provide for whatever the examination may ask. In regard to the primary subjects which all men should alike know, examinations may serve a most useful purpose; but after the rudiments have been learned, examinations are usually useless and harmful.

It is the wasteful result of our present system of education which appears in the relatively greater quickness with which a man, with ordinary good judgment in the choice of his studies, can gain an education out of college than in. The knowledge that has to be gained by mere repetition under the spur of fear of the examination, but without the help of interest, is seldom remembered long after the examination, and the labor which has been devoted to drilling that knowledge into the consciousness is lost and wasted. How much does the school-boy now remember of the facts that he learned last year in his course of study, — say, upon the period of the world's history from Frederic II. of Sicily to the Reformation? Some names like Petrarch, Francis I., Luther, Henry VIII., stand out in memory, but the vast mass of little facts, about little men and little places and little events, which the boy knew much about on the day of his examination, are now all forgotten. The labor spent in getting an accurate knowledge of those little facts was almost entirely wasted; only so much remains to pay for that labor as results from the possession of unconscious knowledge. Thus it is easily seen that a man who is fettered by no obligation to acquire knowledge that he is not interested in, and which he knows will be soon forgotten, has an enormous advantage over the man who has such an obligation, even if the abilities and labor of the two men are equal. But, granting that the abilities of the student in college are not greater nor less than the abilities of the man who is directing his own studies, there must be a great difference in the labor that the two men do. For, while the college student is obliged to cram into his head all sorts of stuff that he is not interested in, he certainly will not work as zealously or as effectively as the man who studies only what his interest incites him to.

It is here also that we find an explanation of the reason why men of genius seldom stand high on college rank-lists, and, conversely, why men who stand high on college rank-lists are seldom men of genius. Perhaps the most fundamental difference upon which a classification of kinds of minds could be based is the difference between acquisitive and originative minds. The acquisitive mind readily falls into the meaning of what another says, although it is seldom able to say anything itself. It takes in very readily what another thinks, and can give it out very readily, but only in the form in which it was taken in. An originative mind, on the other hand, seems to have a vast amount of unconscious knowledge relatively to its conscious knowledge. It can turn over the relations between the unconscious ideas that it has, and, because it has such a vast amount of such ideas, it can see relations which other minds cannot. Thus, because the thinking of a genius is done with unconscious materials, his brilliant ideas seem, even to himself, to come from on high. Such is what we call inspiration. An acquisitive mind takes into its consciousness what has already passed up to and through the consciousness of some one else; an originative mind takes into its consciousness ideas which had never hitherto been seen by the consciousness of man.

But even the thoughts of a great genius seem in some sort to be a part of what we have already thought for ourselves. We could not understand or appreciate the thoughts of a great writer unless those thoughts were already in some way our own. Indeed, the entire process that we call "understanding" seems to be merely a process of bringing to our consciousness explicitly what we knew before only unconsciously and implicitly. A man who has not himself thought out, or lived through, the thoughts that he reads, does not understand them. Plato, Kant, Goethe, Shakespeare, the authors of the Bible, are all writers of jargon to the stunted mind of the little dry-goods seller whose mental gaze has been limited by the four walls of his store. In this aspect we may look upon all our acquisitions from books of thought as remembrances, recollections of what we knew before. Thus it is true that only God gives us knowledge; even the greatest men only revive our knowledge, or revivify it, by giving it new forms, new attractions, and new interests. The great author, the great preacher, is but a man who has so lived through the thoughts that his fellows are thinking that he can bring them up to his own consciousness, and is thus able to bring them up to theirs. So, too, are the likes and dislikes of people for books explained: each chooses the book that is the expression of his own unconscious thought.

Of course the power of mind which is fitted for taking in what has passed through the consciousness of some one else is not necessarily the same as the power of bringing up ideas for one's self to consciousness. In fact, the two powers are entirely distinct. It is usually just because the genius has great powers of originating thought that he cannot give out ideas just as he took them in: every thing in passing through his mind is related and correlated to other ideas in his mind, and he is constantly turning out new ideas instead of giving out the old ones. Thus the genius is usually a poor scholar for at least two reasons: because he seldom takes in ideas consciously, but usually drinks them in unconsciously by a sort of intuition; and because those ideas are altered over and so changed in passing through his mind that they seldom come out as they went in, if they come out at all, and usually not the ideas themselves, but ideas derived from comparing them with other ideas are the ones which such a mind produces.

It seems from this that the fact that a boy leads his class, while evidence that his mind is not of the lowest order, is also usually evidence that his mind is not of the highest order. The geniuses of a class seldom lead it. This is one explanation of the reason why the studious men at school are not looked up to with the reverence that we should, on a first thought, suppose them entitled to. But there are also other reasons which are almost sufficient to explain why the students of many of our first-class colleges rather despise the men at the head of their classes, who are often contemptuously called "grinds," "digs," "crams," etc. One reason is, undoubtedly, that many low-rank men feel that they, too, could, if they would, stand high in their class. But there is an unconscious, and yet a very strong, feeling among students that the kind of knowledge that is gained by a hard study for the sole purpose of passing a good examination is not so much worth the having as knowledge that is gained by judicious study with a broader purpose. It is easily seen that very many men actually do stand low in their class who, with as fine abilities as the leader of the class possesses, do as much study as he. The low-rank men of a class may therefore be of three kinds: First, men who stand low because they lack ability; second, men who stand low because they do not study; third, men who stand low because they do a kind of study which is not credited on examination, but which is believed to be more valuable than machine school-study because it works better results in the long run and does get credit when the student reaches active life.

A man of the second of these three classes feels himself equal, and a man of the third believes himself superior, to the men who lead the class. These two classes of students naturally feel some slight contempt for the men who lead the class because those men are willing to devote their energies and abilities to work which is not of the best kind. Such contempt, which may be unconscious, but which is nevertheless real in all our great schools, is increased by the facts, that the high-rank students often study for their position on the spur of mere vanity, and for no high purpose; that their study is often necessitated by their poverty, for poverty can never become a mark of honor, even if it ever ceases to be dishonorable; and that their position in the world is often unlikely to be a prominent one, not only because their abilities are not such as make men prominent among their fellows, and because their knowledge is not of the most useful kind, but because their health is often more or less injured by their injudicious study. Poverty and weakness are never honored among men, and they cease even to be pitied when they have been incurred willfully and in the accomplishment of little purposes. The high-rank men of schools seldom have the physical health, the erect bearing, the dash and activity, that are the charm of young manhood. Certainly there are many high-rank men who lose nothing by their rank at school, but it is also certain that, under our present system of education, the best men seldom lead their classes, and that there is almost as much, and, perhaps, quite as much, honor lost as gained by taking a high rank at school.

For these among other reasons schools and teachers have also lost their hold upon public esteem which they held for many centuries. A teacher is no longer looked up to as a member of the "first society," and a school is no longer regarded as a sacred thing; and this in spite of the fact that teachers and schools of the right sort are in greater demand now than they have ever been before, and that that demand must continually increase. With the vast increase in knowledge that man has made, some royal road to learning has become a necessity. We now have to learn, not only what our fathers had to learn, but also the results of the discoveries that have been made since they were pupils. The amount that has to be learned is increasing in more than a geometric ratio with each succeeding generation. To keep pace with the quantity that has to be learned, some quicker way of learning must be devised than the one that we have hitherto been content to use. It would indeed be strange if, while every other science is growing, and many new sciences are constantly springing up, a science of education did not develop. As psychology becomes more and more a science, as it is perfected like other physical sciences, the science and the art of education ought to receive vast benefit.

This essay is one attempt to apply some few of the results of modern philosophizing and of recent studies in psychology to practical purposes. It is not my purpose here to define a new system of education. I believe that, as soon as teachers learn the facts concerning the constitution of mind, a system will naturally rise up, which, if it is not different from our present system, will be a radical modification of it. I do not feel called upon here, therefore, to map out what I believe the true system of education should be. Such theorizing is seldom profitable, and always seems impracticable. If I say that the present system of determining what the pupil knows, and of teaching him what he ought to know, by recitations and examinations is very imperfect, I do not pretend to say what system should take its place. Every teacher would have his own way of applying his knowledge of the facts of mind in a system of education, and if a teacher once thoroughly understands that the greatest part of the work of the mind is done unconsciously, he will find his own way of using that knowledge in his teaching. To be sure, his way may not be the best, but it would be foolish, because it would be useless, to define for him what would be the proper system of education before he understands why his system is not the best, and what the reasons are for taking up another one; especially because, when he understands those reasons, he will in all likelihood be able to make the proper change himself.

It is earnestly hoped that our schools will be able to devise some less wasteful method of education than the one they now use; some method which shall enable a boy to learn as quickly in college or school as self-educated men are able to learn without the help of schools; some method which shall teach boys in the way that the world will teach them, and shall teach them what will be most useful to them in the world. It is certain that any such method must take into account the unconscious powers of mind as they are used both in acquisition and in memory.

THE TRUE THEORY OF DISCOURSE.

BY PROF. T. W. HUNT, PH.D.

DISCOURSE, as a science and an art, has to do with the expression of thought in written and oral poems. From the time of Aristotle to the present there has been a wide variety of view as to the best laws and methods by which such an expression should be governed. Schools have been established and manuals prepared to illustrate the excellence of this or that system. Varied, however, as this opinion has been, there is still need of a theory of discourse which will satisfy all the conditions of a true theory, and which, in its practical application, will prove itself adapted to all prevailing demands. It is the purpose of this paper to bring to view these salient features and special aims which such a theory should involve.

1. Discourse is to be studied in its vital relations to language and literature. It is the art by which language as the medium of thought is put into the best literary form. So vital is this relation that the best method, perhaps, of the study of discourse is its study as manifested in some particular literary work. In English, for example, the critical study of Addison and similar authors as to language, structure, and general style would illustrate such a method. This is the system recommended by Professor March in his little treatise, "Study of the English Language." Calling the attention of the student to some choice selections from various English authors, he makes these selections the basis of philological, rhetorical, and literary study, and thus reveals the unity of the entire subject. The study of one's vernacular, or the reading of the standard authorship of his nation, is not a study isolated and special, but one essentially involved in the study of discourse. Discourse thus viewed would be something more than a body of abstract and primal precepts, having a kind of separate existence, and without the flesh and blood of a living organism. It would be full of life and power just because of its relationships. From a study of mere theory, having no origin or end apart from itself, it would rise to a study instinct with interest and fruitful of the best results. Such a method is as urgent as it is uncommon, while its increased adoption on the part of educators is full of promise as to the future.

2. Discourse is to be studied in the light of its practical relations to the world and human life. The impassioned lines of Goethe in "Faust" are here in place:

"Oh! if a man shut himself up forever
In his dull study; if one sees the world
Never, unless on some chance holiday
Looks at it from a distance,
How can he learn to sway the minds of men
By eloquence, — to rule them or persuade?"

As to this practical element, the pagan teachers of the art were far in advance of modern times. Aristotle, Cicero, and Quintilian wrote their respective works for a special objective purpose. The bema and the rostrum were distinctly in view. This, it is true, is accounted for, partly, in that discourse meant with them oratory only, and that of the argumentative form; so that all their instructions had primary reference to the pleader at the bar. This conceded, however, there is far greater need in the present than ever before of a theory of discourse finding its origin and inspiration in the claims of men. This principle is worthy of special emphasis, in that the art is so often regarded as anything but practical. It is tacitly assumed that when men have occasion to discuss living issues, and as men to men, they carefully abandon the systems of the schools and betake themselves to more practical and potent methods. Nor is there absence of good reason for the prevalence of such an error. Its correction lies in revealing the intimate relations of the science with the deepest interests of men, in showing its value as an agent by which those interests are to be secured and maintained. Not only should the writer be conversant with the world, but his methods as a writer should be modified by such a knowledge. The discourser has no right to construct theories of his own quite apart from popular tastes. His art should find its origin and end in the people, their instruction and pleasure. Hence the important bearings of this art upon the liberal professions; its practical import to the statesman and public orator, — in fine, to all men whenever they do the work of writers or speakers. There is a dangerous tendency in scholarship to isolate itself unduly from the living world about it; and harmful as such isolation is on the part of the scholar, it is doubly so in the sphere of discourse. If the discourser is to expect a hearing, he must show himself acquainted with the needs and varied experiences of men. The art of discourse must be shown to be what it essentially is, — an art by which man expresses himself most effectively to man. As such, it is an art where principles, methods, and results must be, in the best sense, popular, and thus an art in which every intelligent man should find a personal interest.

3. Discourse is to be studied in the light of principles rather than through technical precepts. It is thus that the Law of Freedom in

Expression will be emphasized. ·Here, as in all other departments, what is especially needed is the statement of some leading laws to guide and stimulate. The discovery of a central and living principle is a hundred-fold more important here than volumes of formal, correlated rules. There is no need of a carefully-framed rhetorical statute warranted to accomplish a fixed result without deviation. What is needed is an idea, germinal and controlling, which the discourser may himself develop and apply in accordance with the suggestions of his own mental life. As already intimated, the law that must reign supreme over all others in discourse is the law of liberty. Anything is preferable to constant and conscious servitude to formal precept while in the act of expression. We care not, as we write, ever to be hearing the decalogue of discourse with its commands and prohibitions. We care not to have a Shylock at our side, ever asking, "Is it so nominated in the bond?" Hence, the great superiority of the philosophic method, in that it is upon this method only that any such law as that of liberty can be applied. It is only when the method is minute rather than comprehensive, technical rather than suggestive, that we hear of conflict between Law and Liberty. When precepts in discourse are pressed in place of organic principles, the art descends to the level of pedantry, and is unworthy of pursuit. One of the best results of all true philosophy is mental emancipation. It frees the mind from prejudice, and guides it in the application of truth. The art of discourse, when thus unfolded, is always liberative and expansive. "Nothing can be of greater benefit to the student," says Dr. Shedd, "than to compose in the light and under the impulse of ideas." Freedom of expression, by pen or voice, is the result of the government of ideas.

4. Discourse is to be studied as based upon a true philosophy of the human mind. The science of discourse is not a mental one formally defined, but if it discourse its laws and methods from the study of mind, it is essential that it be pursued in the light of such relations. The external forms of expression are to be consolidated with the action of the intellect, and shown to be the natural manipulation of such action. The student of this art must have a clear knowledge of the powers of the soul, their laws and conditions. He must be familiar with the nature and operation of what may be termed the Expressive Faculties of the Mind. Just here the study of discourse may be seen in its highest mental aspects, and yet clearly distinct from a mental science. The art of discourse becomes thus the art of the expression of mind. There is such a thing possible, indeed, as the most pronounced ability in the study of mind quite apart

from ability in its expression. There are but few mental philosophers of whom it can be said, as of Descartes and Cousin, and a few names in the Scottish school, that their works are models alike of thought and expression. The reverse of this principle, however, will not hold The student of discourse must be conversant with the mind that he is using and addressing. The more practical his work becomes, as applied in the different professions, the more imperative is this need. He must understand the emotions of the soul,—their sources, modes of manifestation, and how to awaken and allay them; must be familiar with the action of motions, how to persuade and dissuade; must be conversant with the laws of taste, and the moral constitution of man. In a word, he must know man in that complex organism called the soul, in that he may be able to interpret and impress it, and make the truth effective. Such is the psychology of discourse, and such the only rational and satisfactory basis in which to examine and apply it. If this be so, it is pertinent to remark that the study of discourse should not be confined to the opening years of our collegiate courses. The study of diction sentences and figurative forms has its place, but only as preparative to a higher method, the study of discourse as related to logic, ethics, and the science of mind. To abandon it at any earlier stage is to divest it of much of its value in the line of practical result, and of most of its value as a mental discipline, It is an art, therefore, whose discussion need not be metaphysical, but which may be shown to be based upon those fundamental facts which have been derived from a close observation of our mental processes. It is an art by which rational minds express themselves to each other after a rational manner. He is doing a most valuable work in behalf of this art who ever insists upon thus exalting it above the sphere of the purely verbal and innate into the higher realm of the philosophic. "Rhetoric and logic," says Aristotle, "are antistrophic." The same remark applies to discourse and the science of mind. They answer to one another.

5. Discourse is to be studied in the light of its ethical element, and the consequent moral training demanded on the part of every worthy exponent of its principles. "Discourse," says Quintilian, "reveals character, and not without reason did the Greeks teach, that as a man lived so he would speak." Cato and Socrates and Cicero taught that eloquence is a virtue. At a later date Pascal and the French school held the same opinion. Even in Germany this higher view finds advocates, and Theremin declares it to be "a part of ethics, an ability to exert influence according to ethical laws." Other things being equal, he ought to be the most successful discourser who is the

best man. All the varied and delicate processes involved are, in a sense, moral, and this element enters into that which is mental and works with it. Nor is this principle confined to the sphere of sacred discourse and the specific duties of the Christian minister, but has an important application in the expression of secular truth for secular ends. Intellect and conscience are so related that no writer or writers can safely ignore the relationship. Man is preëminently a moral being, and whatever he says he says more or less in that capacity.

We have thus aimed, as Bacon would phrase it, "to stir the earth a little about the roots of this science." We have aimed to present the subject of discourse on its higher plane. There is what Herbert Spencer calls "a philosophy of style," a creative as well as an æsthetic function, an organism as well as a mechanism, an art of expression something more than "from the teeth outward."

With its relations thus defined to language and literature, to human life, to philosophic principles, and to ethical law, it may with safety and zeal be commended to every aspiring mind. The art of expression, thus viewed, is, after all, the art of arts. It is the final cause of all our knowing.

from ability in its expression. There are but few mental philosophers of whom it can be said, as of Descartes and Cousin, and a few names in the Scottish school, that their works are models alike of thought and expression. The reverse of this principle, however, will not hold The student of discourse must be conversant with the mind that he is using and addressing. The more practical his work becomes, as applied in the different professions, the more imperative is this need. He must understand the emotions of the soul,—their sources, modes of manifestation, and how to awaken and allay them; must be familiar with the action of motions, how to persuade and dissuade; must be conversant with the laws of taste, and the moral constitution of man. In a word, he must know man in that complex organism called the soul, in that he may be able to interpret and impress it, and make the truth effective. Such is the psychology of discourse, and such the only rational and satisfactory basis in which to examine and apply it. If this be so, it is pertinent to remark that the study of discourse should not be confined to the opening years of our collegiate courses. The study of diction sentences and figurative forms has its place, but only as preparative to a higher method, the study of discourse as related to logic, ethics, and the science of mind. To abandon it at any earlier stage is to divest it of much of its value in the line of practical result, and of most of its value as a mental discipline, It is an art, therefore, whose discussion need not be metaphysical, but which may be shown to be based upon those fundamental facts which have been derived from a close observation of our mental processes. It is an art by which rational minds express themselves to each other after a rational manner. He is doing a most valuable work in behalf of this art who ever insists upon thus exalting it above the sphere of the purely verbal and innate into the higher realm of the philosophic. "Rhetoric and logic," says Aristotle, "are antistrophic." The same remark applies to discourse and the science of mind. They answer to one another.

5. Discourse is to be studied in the light of its ethical element, and the consequent moral training demanded on the part of every worthy exponent of its principles. "Discourse," says Quintilian, "reveals character, and not without reason did the Greeks teach, that as a man lived so he would speak." Cato and Socrates and Cicero taught that eloquence is a virtue. At a later date Pascal and the French school held the same opinion. Even in Germany this higher view finds advocates, and Theremin declares it to be "a part of ethics, an ability to exert influence according to ethical laws." Other things being equal, he ought to be the most successful discourser who is the

best man. All the varied and delicate processes involved are, in a sense, moral, and this element enters into that which is mental and works with it. Nor is this principle confined to the sphere of sacred discourse and the specific duties of the Christian minister, but has an important application in the expression of secular truth for secular ends. Intellect and conscience are so related that no writer or writers can safely ignore the relationship. Man is preëminently a moral being, and whatever he says he says more or less in that capacity.

We have thus aimed, as Bacon would phrase it, " to stir the earth a little about the roots of this science." We have aimed to present the subject of discourse on its higher plane. There is what Herbert Spencer calls " a philosophy of style," a creative as well as an æsthetic function, an organism as well as a mechanism, an art of expression something more than "from the teeth outward."

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THE INDIAN TRAINING AND INDUSTRIAL SCHOOL AT CARLISLE, PA.

BY PROF. J. A. LIPPINCOTT.

THERE lies before me, as I write, No. 3, Vol. II., of "Eadle Keatah Toh," — that is, "Big Morning Star" — a paper published at the Indian Training School, Carlisle, Pa. This paper is printed, for the most part, by Indian boys, who are apprentices in the printing-office at the school.

The paper in question presents an unusual table of contents, and is worthy of the most careful study by all who are interested in the problem of Indian education and civilization. First comes the (second) "Annual Report" of the superintendent of the school, Captain R. H. Pratt, to the Commissioner of Indian Affairs. In speaking of the progress made by the children in the school-room and in the work-shop, Captain Pratt very properly quotes a report made by a committee of gentlemen who visited the institution at the close of the academic year, last June. These gentlemen attended the examinations in the school-rooms, inspected the exhibits of workmanship furnished by the shops, and made a sufficiently elaborate report. We quote from this paper further on. In the issue of "Big Morning Star" of which we speak, we have also reports "To the Board of Managers of the Cumberland County Agricultural Society," made by two different committees, in regard to the workmanship of articles put on exhibition by the Indians of the Training and Industrial School. These various reports leave no room to doubt either the capacity of the Indian youth or their successful training. By a happy coincidence another question seems in good part answered in the paper to which reference has already been made; namely, Can the Indian thus educated maintain his advantage when he returns home, or will he fall back easily to the old ways? On the second page is an account, copied from "Cheyenne Transporter," of a feat at brick-making by an Indian man named Starr, whose reclamation from savage life was begun in the East, under Captain Pratt's direction, in Florida and at Hampton. The "Transporter" says, "Everything considered, we are willing to put this record against anything that can be shown by white men. In skill and ease of execution, Starr has few equals even among white molders. The contest (at brick-molding) was interesting throughout, and shows what Indians, under proper training, can accomplish." On the fifth and sixth pages of "Big Morning Star" are letters from P. B. Hunt and John D. Miles, Indian agents in the West, written to Captain Pratt in answer to inquiries made by him in regard to the character maintained at home by certain boys who had been under instruction at the Carlisle and other eastern schools, and had been returned to their tribes. Their answers are full, explicit, and evidently candid. Mr. Hunt says: "I shall write plainly." Indeed, they both write plainly, speaking of the boys by name, and telling their good qualities and their faults with a straightforward fidelity that perhaps many a white man would relish more in theory than in practice.

This whole subject, involving not only the education of Indian youth, but the broader question regarding the civilization and Christianization of the entire people, and their ultimate relations with our own Government, is one that appeals strongly to our sympathies, and cannot fail to be of deep interest to the many readers of EDUCATION.

That there ought to be adopted by the United States Government a well-digested plan, looking to the careful and systematic training of *all* Indian children, is happily now questioned by few. It will not be very many years before these people will claim the rights of citizenship, and we do not know how soon the exigencies of political strife will lead one or the other of our great parties to advocate, and perhaps accomplish, their enfranchisement. We have already tried some hazardous experiments in the line of sudden and ill-prepared admission to the rights, duties, and responsibilities of citizenship. In regard to this people there should be no mistake, either in the direction of undue haste or of unjust and ungenerous delay. One duty, clearly defined, faces us to-day, — ***educate all Indian children within our boundaries.*** A plan which seeks to accomplish less than this fails by defect.

As bearing upon this general work, the plans, the methods, and the success or failure of the Indian Training and Industrial School at Carlisle, are worthy of careful study. Here have been gathered together, during the last year, 295 Indian boys and girls from twenty-four different tribes, speaking as many different languages. In age these children range from eight years to maturity, the average being about fifteen years. A few of them,—as, for instance, those from the Indian Territory, — have been more or less under the influence of teachers and missionaries on the frontier, but most of them were brought directly from the Indian camps, ignorant, squalid, and filthy, and dressed in the fantastic garb of the savage. They knew not one word of English, were wholly unacquainted with our civilization, and apprehensive in regard to the disposition toward them of the dreaded "pale faces." In estimating the work accomplished in the school, it is but just to give due weight to these disabilities. Yet the remark may be ventured, that both they and their teachers will waive any claim to indulgence on this account, and consent to a comparison with any ordinary school of white children of equal grade. What has been accomplished, and in what manner, is fully set forth in the following quotation from a report already referred to:

> "It has been with admiration bordering on amazement that we have observed the facility and the accuracy with which the children passed through the various exercises of the school-room. The manifestations of advancement in the rudiments of an English education are to us simply surprising. In reading, geography, arithmetic, and especially in writing, the accurate training apparent in all the classes, and the amount of knowledge displayed, are in fullest proof, not only of skillful and successful teaching, but no less of aptitude and diligence on the part of the Indian children. . . . We are fully persuaded that improvement equal to that which we have witnessed in the case of these children of the plains, made in equal time by American children, would be regarded as quite unusual."

This report is signed by Rev. J. A. McCauley, D.D., president of Dickinson College; Rev. Jos. Vance, pastor of the First Presbyterian Church, Carlisle, Pa.; Rev. Wm. C. Leverett, rector of St. John's Church, Carlisle, Pa.; C. R. Agnew, M.D., New York City; Hon. F. E. Beltzhoover, M.C., Carlisle, Pa.; and E. P. Pitcher, Esq., of the public schools of New York City.

But the object of this paper is not the laudation of Captain Pratt and his assistants, nor yet of this method of Indian education. If the school is worthy of commendation, a statement of facts is sufficient praise; if, as a much-heralded factor in the problem of Indian education, it is a failure, the sooner the facts are widely known the better. Let us then consider the objects directly aimed at in this school for Indian youth, and inquire to what extent these objects are realized.

1. As hinted at above, these children came to the East with many fearful apprehensions. The "pale faces" were their traditional enemies. Of course their parents freely consented to their coming; still, such has been the relation between the races, such the traditions of injustice and lawless aggression and of savage retaliation, that these children, most of them from the far-away camps beyond the reach of the better forms of our Christian civilization, came from their parents into strange surroundings with something of reluctance and with misgivings ill-concealed. The first object was to break down this barrier; to overcome their reserve and make them communicative; to convince them that they were among friends. The tact, skill, and Christian courtesy and kindness of heart of the teachers

soon made an impression. The isolation caused by their reserve is in large measure removed. The teachers have the confidence of the children, and are entirely trusted by them. The way is fully open for positive instruction.

2. The next object seems to have been to plant within them a desire for those things which characterize the white man's civilization. If they reach the point where they *long for* an education, where they *wish* to learn to work, the victory is half won. The writer of this paper has had the most ample means of observing the practical work of the school, and he does not hesitate to say that, although he has been in schools and school-work all his life, he has never seen a company of students in whom there has appeared a deeper and more consistent desire to learn than this school of Indian children.

In this work there is a wonderful assistance afforded by the silent influences of civilized life. The children are constantly reminded of the contrast between the savage life from which they have been removed and that which they see about them. Cumberland Valley, in the midst of which Carlisle stands, is far-famed for its fertile farms and its thriving villages. Here are well-cultivated fields, a contented, happy, prosperous people. The rushing trains constantly passing in full view of the farm and of the school, the quiet home-life of the people, in the enjoyment of which many of them have shared during a part or the whole of their vacations, the orderly and devout assemblages of the children in their Sabbath schools, and of their elders in the church, into which assemblies they have themselves been cordially welcomed,—these all deepen the impression. And if anything were needed to complete these educating influences, it is the heartiness with which the Indian children are invited to fairs, festivals, and pic-nics, and the generous and friendly entertainment provided for them when such invitations can be accepted. These are powerful additions to the direct efforts of the school itself to awaken a desire to learn " the white man's ways," and these influences are at once silent, uninterrupted, powerful.

And they are effective. There is a growing realization among the children of the vast superiority of the civilization in the midst of which they live to the savage life which they have left behind,—they hope,—forever. The desire is constantly growing stronger that they *and their people* may speedily escape from the camp-life and begin to live like the white man. This desire finds frequent expression. If, in their school-exercises, they are required to write their own thoughts, or deliver original speeches; if they speak extemporaneously in their religious meetings, as they often do; if they write letters, whether to their teachers and friends or to the agencies for their parents, they are ever giving expression to this desire. An Arrapahoe writes: "I want to know how to work and learn everything that is good. . . . I do not know much about the good ways yet, and I want to learn more and more."

Another sentiment, kindred to this, is industriously inculcated in the school and eagerly seized. It is, that these children are to return to their people to teach them "the good ways." Many of them begin to feel the true missionary spirit. Often and often has it gained expression in their prayer meetings. Still better, possibly, this feeling is shared by the parents themselves to an extent that is most gratifying and very promising. The better-informed Indians *know* that the present system cannot much longer be maintained; that there is for them in the future positively nothing but civilization or extermination. The education of their children gives them a single hope, and they turn with earnest longing toward the school and the workshop as one who wearily waits in the darkness for the day-dawning. My father "wants me to tell him about the good way," — so writes an Indian boy in a letter to Captain Pratt.

3. Another object earnestly sought in the school at Carlisle is the learning of English. This is made the language of the school-room, of the church and of the Sabbath school, of the farm, and of the workshops. Besides this, every influence is brought to bear upon the children to make English the language of their play and of their recreation hours.

4. Another object kept steadily in mind is the inculcation of the precepts of morality. Appeal is constantly made to the rule of right. To cultivate the power to distinguish between right and wrong, to develop such traits of character that the right will be chosen without hesitation and the wrong rejected, is the constant aim of the instruction.

5. Nothing more is attempted in the direction of literary culture than the elements of a good English education, such as is furnished by our common school system. What success has been achieved in this line has been already amply set forth.

6. Both boys and girls are taught to work. Among the boys a regular apprentice system has been adopted. There are shops upon the grounds, with competent and accomplished master-workmen who act as foremen and instructors. A farm has been rented adjoining the school, and placed under the care of a skilled and intelligent farmer. As a result of this apprentice system, Captain Pratt reports that he has shipped during the year to the various Indian agencies,

under orders from the department, and at the regular department prices, goods manufactured in the shops,—tin-ware, harness, wagons, and carriages,—amounting to $6,333.46. The harness-shop has paid the salary of the instructor and *wages to the apprentices*, and for all the material used, and has a balance in its favor for the year of $399.64. Similarly the balance in favor of the shoe-shop is $101.26; of the tin-shop, $81.27; of the wagon and blacksmith-shop, $194.48; and of the farm, $130.75.

The girls are also taught to cut out garments, to sew with the machine and with the needle, to mend, to darn stockings, etc., and are instructed in all the branches of housekeeping. The larger girls are detailed in turn to cook, to serve in the dining-room, to care for the parlors, etc.

7. Last mentioned in this paper, but not last thought of, is the religious instruction of the Indian children. The formal religious services consist of Sabbath-school, prayer-meetings and preaching on the Sabbath day; and of prayers and the reading of the Scriptures at the beginning of each daily school session. Besides this, however, there is a pervading religious influence in the school that is never suspended. In this respect the advantage gained is far greater than would be possible in a day-school. The results of this work are most hopeful, and very promising for the future. From sixty to seventy of the larger children give evidence of sincere conversion to the Christian religion, and most of those who have professed conversion give evidence, in improved life and manners, of a change of heart. About thirty have joined the different churches in Carlisle.

The girls assemble every Sabbath morning in the chapel for Bible instruction, under their own teachers, while the boys, under proper superintendence, are allowed to attend Sabbath-school and morning religious service in the various churches in town. On Sabbath afternoon the Indian children have a church service of their own, with preaching by their own chaplain. Sabbath evening is devoted to prayer-meeting, under the direction of Captain Pratt or of the chaplain. In this service the professing Christians among the boys take a leading part, sometimes in their own language, but generally, now, in English. The form and spirit of their petitions, and the earnestness of their exhortations, are proof enough of the good religious spirit that prevails. Altogether, this feature of the school is most promising, and calls for the heartiest sympathy of Christian people.

The object of this paper has been rather to present facts in regard to the Carlisle school than to insist upon the superiority of this method of Indian education. It may be that other methods will prove better.

So far, however, as regards the cost, the general government is not only abundantly able, but is also under the most solemn moral (and treaty) obligations to supply *the very best* educational facilities to these people. This obligation is fully set forth in the following quotation from treaties concluded with a number of Indian tribes by a commission, of which General W. T. Sherman was chairman, and ratified in 1868: "And the United States agrees that for every thirty children between said ages [6 to 16] who can be induced or compelled to attend school, a house shall be provided, and a teacher competent to teach the elementary branches of an English education shall be furnished, who will reside among said Indians, and faithfully discharge his or her duties as a teacher."

Captain Pratt estimates (see his report) that the money-obligation formally recogznied by these treaties with eleven Indian tribes reaches the sum of $25,750,000. It would seem, then, that there need be but little question in regard to *means*. The serious question is, What is the best plan? Doubtless the best plan will not follow a single line. There will, perhaps, be established in the East a goodly number of institutions like those at Carlisle and Hampton, and there will be a great multiplication of home schools among the tribes. In addition to these there may grow up, after a while, normal schools, colleges, and theological seminaries for Indian students alone.

Yet, in the opinion of the writer, the end to be finally reached is the abolition of schools of all grades, designed exclusively for the use of the Indians. Every plan of this kind is built up on a false basis. There is beneath it the old *reservation* idea. According to this idea the Indian must be *separated from the white man*, and compelled, under pains and penalties, to keep his distance. No other people is thus treated in our *free* country than the unhappy descendants of those from whom we have forcibly taken the soil. If they are untutored savages, so much the more reason is there for removing these restrictions in order that they may the more quickly learn our ways and become a part of our people. The descendants of Irish immigrants of the first and second generations become *Americans*, and are advanced by us not only to citizenship, but also to the highest official positions. The Indians are driven back, kept upon reservations, and compelled to remain Indians,—and *savage* Indians at that. Is it not better to introduce them to associations with our people? Will they not thus, better than in any other way, learn both to respect us and our civilization, and to have confidence in themselves in the competitions of life? The time is coming, *must come*, when the reservation system will be removed, root and branch. Then, if these people are not prepared for the associations and competitions of the new era that opens before them; then, if the old and traditional animosities that have so long and so unworthily existed between the two peoples shall not have been removed or softened, there is but *one* future for them,—extermination.

As we have seen, the effort is made in the school at Carlisle,—and with good and hopeful results,—to soften race-animosities and remove traditional barriers between the two peoples; to show the Indian by actual contact the measureless superiority of the arts of Christian civilization, and to plant within him a desire to share in their benefits; to sink tribal differences among themselves (and especially tribal dialects), and to teach them the English language; to give the boys industrial trades, and to teach the girls the art of housekeeping. These things, we need not argue, are accomplished far more easily in eastern schools than in schools on the borders, or in the various Indian reservations.

In conclusion, we quote once more from Captain Pratt's report:

> "By authority of the Department, 109 of our students were placed in white families, mostly farmers, during the vacation. . . . Six girls and twenty-three boys have been allowed to remain in families through the [coming] winter. They will assist in the duties of the farm and the household for their board, and will attend the public schools, thus having advantages for learning civilized habits and gaining knowledge far better than we can give at this school. This individualizing seems incomparably the most hopeful, because the most rapid and complete plan. I gratefully report the hearty coöperation and interest of the many friends who have thus taken our children and treated them as their own.
>
> "In this connection it is worthy of special notice that the school directors in one locality raised the objection of aliens against free admission to the public schools for our Indian children, and submitted the question to the State Superintendent, by whom it was decided that they were entitled to the privileges of Pennsylvania public schools. The final question as to the future of the Indian is, how he shall be fitted to take his place as a citizen in this country, a man among men, when he shall no longer be treated like a spoiled child, alternately petted and punished, but when he shall have alike the privileges, freedom, and responsibilities of other citizens. Common sense would seem to say that he should first be made to understand what will be expected of him, what manner of being he will come in competition with, and be educated up to the strength he will need in the changed struggle for existence. This is knowledge he cannot gain so long as he is sedulously kept from opportunity for actual comparison."

MANUAL EDUCATION IN PUBLIC SCHOOLS.

BY L. H. MARVEL.

It is doubtless true that the boy who graduates from a city high school, at the present time, is not as well prepared to earn his living, immediately, as was the boy of the same age (about eighteen years) half a century ago, or as is the boy who attends the country district school to-day. For this reason some critics argue that the results of modern public school-work are not commensurate with the expense, claiming that the old-fashioned district school gave its pupils a better education than the modern graded school gives, and in less time as well as at less expense.

In order to institute a fair comparison between the schools of olden times and those of to-day, it is necessary to know what was accomplished then. The standard authority, "Barnard's Journal of Education," (Vol. XIII., p. 739), states that,—

> "The time during which schools were taught in the rural districts,—and such were most of them at the close of the Revolution, — was from *eight* to *twelve* weeks, and that in the winter season. In the summer there were few, if any, schools, as all who could hoe a hill of corn, or do housework, were required to labor. At this early period, the attainments of those who had no further instruction than was received in the district school were limited to very few branches, the reasons for which are quite obvious,—namely, the *inability of the teachers* on the one part, and the limited time of attendance allowed by the parents on the other. Spelling, reading, writing, and arithmetic as far as the rule of three, with simple interest, were the main branches. It was, however, thought by many parents unnecessary to have their daughters taught in arithmetic, as in their view it would be of little use to them. Fractions were out of the question."

Half a century later, we learn from a school report of one of Massachusett's most enterprising cities that there was "a disposition to omit the vulgar fractions," that in several districts "the study of geography was greatly neglected," coupled with this statement: "The schools are in better condition than they have ever before been within our knowledge." "A visit to the schools maintained to-day, and a fair comparison of the results with those secured in times past, in accordance with the record presented, will show how utterly false are the premises of those who would turn back the wheels of time from two-score years to a century to discover the model school." One more statement, by President Eliot, of Harvard (Inaugural Address, 1869), will conclude the testimony in favor of modern school work, and serve to illustrate the correctness of the position assumed: "The improvement of the schools has of late years permitted the college to advance the grade of its teaching and adapt the methods of its later years to *men* instead of to *boys.* This improvement of the college reacts upon the schools to their advantage, and this action and reaction will be continuous."

Similar testimony abounds respecting the superiority of city schools to those of country districts in recent years. In the "Fortieth Report of the Massachusetts Board of Education," Mr. Kneeland, one of the agents, reports that, "The old district system prevails only in one or two of the towns I visited. In one its peculiar disadvantages were plainly manifest. No town committee would tolerate such a school as one I saw there." Professor G. A. Walton, whose report on the Norfolk County schools awakened so much attention, says: "I count the district system, which still retains a hold upon many of the towns in this part of the State, to be the greatest hindrance to a uniform advancement of the schools. With no valid argument in its favor, the fruitful source of evil, and liable to that continually, it illustrates the almost sacred regard the people have for the opinions and interests of individuals. But for this, no authority for such a system could remain upon the statute-book for a single year." Certainly the country district schools offer no advantages superior to those afforded by the modern city school systems. All testimony shows the opposite to be true.

Since there is abundant proof that the academic work of the modern graded schools is better than has been accomplished in district schools of ancient or modern times, the cause of the superior preparation of the graduates of district schools for the practical duties of life must be sought outside the school-room. We learn that, "In former times, the State school occupied only such intervals as could be spared from the farm and work-shop. The strenuous urgency of bread-winning narrowed the limits of school-time, though it gave a sharp appetite for knowledge and a zest to acquisition. A large majority of the people were either farmers or crafts-men, and the children preserved and transmitted a well-recognized tradition of manual labor. In general, the training of youth was uniform, and consisted of a happy alternation of service at home and study in school." President Runkle, of the Massachusetts Institute of Technology, presents the following clear and logical statement:

> "In the early days of the Republic, when our system of public education was still in its infancy, mental and manual education were much more intimately connected than at the present day. The industries of the country were still in a crude state,—agriculture and a few only of the more necessary mechanic trades having any existence These trades demanded but little artistic taste, and not the highest manual skill. But the educational needs of the time were quite well met in the apprenticeship system, which existed then in

its best form. The master became responsible, in an important sense, for the mental and moral well-being of the apprentice, besides teaching him the manual of his trade, with such knowledge of the theory, and such experience, as he was able to impart. By his attendance, for three or four months of each year during his apprenticeship, upon the district school the mental culture of the apprentice was not entirely discontinued; and thus by alternating between the school and the shop, his mental and manual education were never entirely divorced, but each in an important sense aided the other. During this formative period of the student's life, one set of habits was not formed to the exclusion of others, which in the end might prove more important.

"As time passed, a more marked separation between mental and manual education began to take place. The schools gradually improved. Better methods of teaching and a larger number of subjects were introduced, and a higher standard set, all demanding more time from the pupil. But quite as marked a change was going on in the industries. Increased demand led to competition, to the invention of special tools to cheapen production, to a greater subdivision of labor, and to the concentration of the individual upon a very narrow range of work. Thus the apprenticeship system for learning a trade in its old and best form has passed away, never to return. As it exists to-day it is an advantage to neither party. The apprentice can only learn a narrow specialty, so narrow, as a rule, that its only value to him is the meagre pittance which he can earn from day to day, but at the sacrifice of any further educational advantages; while the master finds it for his interest to pay for the skill he needs, rather than put into his carefully-adjusted chain of operations a weak and nearly useless link. In this way the school and the shop have become so widely separated that they are no longer mutual helps, as in past times, in developing the highest capacity or the highest manhood. The student who enters the shop at fifteen for a three or four years' apprenticeship seldom returns to the school; and, on the other hand, the student who completes his high-school course at eighteen seldom willingly enters the shop as an apprentice, with the intention of becoming a skilled mechanic, and earning a livelihood by manual labor. His twelve or fourteen years of mental school-work, whether highly successful or not, have, through habit, if in no other way, unfitted him for all manual work, even if he has not in many ways been taught to despise such labor. Thus it happens that, to-day, educators, law-makers, philanthropists, and all interested in the highest good of the largest number of the people, or in the best development of our growing and varied industries, are looking for the remedy through education, not of the head alone, but of the head and hand combined in the same system, in order that the education may lead each pupil to some definite end, or directly to the threshold of some special pursuit; that the student's skill of head and hand combined shall have some small commercial value when he has completed his prescribed course of study."

The key to the problem is the fact that "the school and the shop have become so widely separated that they are no longer mutual helps." By shop, in this connection, is meant any form of regular systematic labor, whether in-doors or out. This occupation was not furnished by the schools of former times, nor is it a part of the curriculum of country district schools. But the pupils who attend such schools have generally some employment outside of school-hours, and to this is due their superior preparation for self-support as soon as the school-days are ended.

Some years ago Rev. Washington Gladden, of Springfield, Mass., instituted an inquiry as to the antecedents of the successful business-men of that city. Nearly all who replied to his questions stated that they were compelled to work during their attendance at school. Could the inquiry be extended to cover the whole country, it is probable that similar testimony would be obtained. The experiences of the past and of the present alike teach us that the body must be trained to work while the mind is trained to think, if we would develop a race of thoughtful working men and women.

> "The riches of the Commonwealth
> Are free, strong minds, and hearts of health;
> And more to her than gold or grain,
> The cunning hand and cultured brain."

While the schools have steadily increased their efficiency in perfecting the "cultured brain," the "cunning hand" has been more and more neglected at home, and no training has been furnished at school corresponding to that previously afforded in the shops or on the farms. The popular dissatisfaction respecting this condition of affairs is thus voiced by Hon. Edward L. Pierce:

> "There is a tendency in our country to overvalue what is called the 'higher education,' at least, as compared with certain homely virtues on which the family and society depend,—industry, contentment, fixedness in home and pursuit. Our high schools are multiplying the number of young men and women who turn from farm, mechanical, and domestic work, and apply for employment as clerks and scriveners. The trained nurse, how hard to find! but copyists, what legions of them, of both sexes, are always waiting to serve you! Even our reform schools press their inmates to a point of intellectual excitement so far above their moral development that, upon their discharge, they treat, as beneath them, farm or domestic drudgery. This tendency is more marked with us than in any other country. It exists, however, elsewhere; as in Greece, where the University is regarded by some as an obstacle to material progress. It results there in a dearth of men fitted for surveying, mining, road-making, bridge-building, and farming; while there is a superfluous number of lawyers, doctors, and clerks, who, having no chance of a career, become idle, restless agitators. *Are not the leaders in our educational movements responsible in some measure for that disgust with manual labor?* for that mischievous notion that it is a misfortune, even a dishonor, to have to work for one's living on the farm, in the factory, or in domestic service, which underlies the dangerous movements of our time, and finally assails social order, as in the municipal elections of San Francisco and the riots of Pittsburgh? That civilization is not healthy which divorces the training of the intellect from the labor of the hands; and that personal culture is defective in which these cunning fingers, these powerful muscles, these stalwart limbs, are left altogether unexercised in productive industry. At least, as a recreation, manual labor helps to maintain the tone of the intellectual life, as eminent examples bear witness. Some of us remember Dr. Wayland, hoe in hand, crossing the college-yard of a summer morning to work in his garden, near where the Memorial Hall now stands; and the present British prime minister is said to be the best woodchopper in the three kingdoms."

The importance of manual training is admitted by educational ex perts as well as by practical "men of affairs." It is felt by the people, and attempts are made to secure such action as will remedy existing evils and supply deficiencies in the practical education of the pupils of the public schools.

In kindergarten culture the manual element is so prominent as to form a prominent feature of the work. The result of kindergarten training is such a harmonious development of the physical, mental, and moral capabilities of little children as no other system of education has ever secured. In a carefully-prepared address upon Elementary Education in London, Sir Charles Reed says: "The best infant schools are those where the *spirit* of the kindergarten has been infused into the whole teaching of the schools." The same results follow the introduction of kindergarten methods into American primary schools.

From the kindergarten to the technical school very little is attempted, but in the technical schools some most satisfactory results have been attained. Descriptions of this work in the Worcester Free Institute and in the Institute of Technology may be found in the forty-first report of the Massachusetts State Board of Education. In the Cooper Union of New York City an art-school for women and a school of telegraphy are accomplishing a useful work. The following report shows something of its scope and influence:

"Honorable and useful employment for women is one of the problems of any high and advancing civilization. In this country, especially, it may be said that the dignity and safety of woman involves the integrity and progress of republican institutions. How can we expect intelligent, self-governed, and freedom-loving sons from ignorant and servile mothers? The necessity of self-support is as imperative on many women as on men. Skilled employments and industrial arts of many kinds are better adapted for women than for men. Nothing can supply this want so well as industrial schools of art, such as are carried on by the Cooper Union. There has been a large excess of applications this year, greater than any before, for admittance to the Art School. The number admitted has been 604, inclusive of the amateur class. More than nine hundred applications have been reluctantly postponed for want of room.

"The school is divided into five departments, — drawing, painting, photography, wood engraving, and normal teaching.

"The drawing and painting school is conducted on a high plane of skill and taste, and has furnished many teachers in these departments. It is the purpose of the instruction in the art departments at the Cooper Union to unite the two instrumentalities in the productions of art, — both designing and careful execution. Invention is specially promoted by the lectures on art which the pupils receive, the instruction in perspective drawing, and especially the lectures and instruction given to the normal class, for the preparation of teachers of drawing in private and public schools. It is the purpose of the trustees to extend the instruction in the schools of art more into the departments of invention and design, as answering a demand most truly American, where the inventive faculties are more active than in any part of the world.

"In the engraving department, the teacher gives out themes or subjects, for which the pupils are required to make the original designs. This is a very important direction ot give to study in this department, because original designs are much called for here, and are well remunerated. This department is also conducted on 'business principles,' and takes orders for illustrations.

"It is worthy of note that the purpose of giving such instruction in practical art and applied science as will put an independent employment in the hands of every student, is in many instances commenced while the pupil is still under instruction in the institution. This is especially the case in the Art School for Women. The amount reported as earned for themselves by pupils in the different departments of the Woman's Art School: this year, is $19,480.

"The school of telegraphy admitted forty-five pupils this year. About one hundred and sixty applied at the regular examination, and passed, but they could not be admitted to the class for want of room. The Western Union Telegraph Company has so far interested itself in this school as to pay a teacher who trains the pupils in the thorough methods of that Company. They can thus draw competent operators for their offices from this school, and have provided a large proportion of the graduates of this school in times past with employment on their lines, although they are under no special obligation to provide a place for any. At present the supply of operators is greater than the demand, but the extension of lines going on rapidly over this vast country will always make a steady demand for the employment of women in telegraphy. Their fidelity, intelligence, and patience will always give them the larger share of this kind of work, from which the young men are drawn away by a more active and ambitious life. The number of pupils remaining at the end of six months' instruction was thirty-four, and the number receiving certificates was eighteen."

The mass of children in the public schools do not have the preliminary training of the kindergarten, and never pass into the technical and special schools. For them it is evident that the common school-work should include such manual training as will supplement education of the brain by education of the hand,—a natural development of such culture of the hand and eye as will lead to the best preparation for any form of skilled manual labor. "Each step, from the first, should be educational, and, moreover, should be taken in its proper relation to those which have preceded and those which are to follow. In the second place the idea of *construction* must be wholly ignored, while that of *instruction* takes its place. In the third place the class system should be introduced, whereby *one* expert, or teacher, is enabled to impart his instruction to *many* at the same time. Lastly, the object sought is not so much the power to do this or that specific thing, as the *trained* hand and eye, which shall give to their possessors the power to do anything within their capabilities."

One of the first objections which is urged against such a scheme is that the work of the schools is clearly over-crowded, and that there is not time for such education. But in half-time schools (*i. e.*, schools where pupils work one-half the day and attend school the other half), it is claimed that the intellectual advancement of the pupils is as great as in schools where all day is devoted by each pupil to the academic work. The intellectual training derived from skillfully-directed labor is alleged to fully counterbalance the difference in the number of study-hours.

In schools where sewing is taught (sewing was taught in all elementary schools half a century ago, and to boys and girls alike), the testimony is essentially the same. All report that the sewing does not detract from the efficiency of the other work of the school, and all claim educational as well as practical value of the exercise. The following points have been made by different parties who have inspected and reported upon this work:

"Right beginnings will be secured by special attention, at first, to the posture of pupils, the proper holding of the work and of the needle, and the adaptation of the needle and thread to the material in use. With sewing, as in all other branches of instruction, variety and interest are essential to success."

"The change from mental to purely industrial application during the school session affords a healthful recreation to children, without retarding the progress or diminishing the amount of necessary school-work. The training of hand and eye to precision in doing things which children can understand, and can see the immediate application of, is legitimate school-work, and is a long stride toward the object for which we strive in teaching writing and drawing."

All this clearly proves that a portion of the school-time may be profitably diverted from purely intellectual employment to some form of manual occupation, not only without detriment to intellectual culture, but as a factor for materially increasing its value.

The question, then, naturally arises, To what extent and in what direction shall this work be attempted? We no longer need ask, "Should manual training be attempted throughout the school-life of our children?" but, "How shall it be successfully and economically afforded?"

SCHOOL SUPERVISION.

BY N. A. CALKINS.

DURING all ages of the world, in every country, among all races, nations, tribes, and communities, the many follow the direction of the few. This condition represents an essential principle in the organizations of society, whether military, civil, scientific, benevolent, or religious. It is seen in all departments of human industries,—on the farm, in the mine, in manufactories, in stores, markets, and banks. It is found along all the railways, on every craft that winds its way in the channels of rivers, on each vessel whose keel ploughs the waves of the ocean, throughout all the movements of commerce, in all the departments of government, in the intercourse between nations, and everywhere amid human activities the principle of supervision and direction is recognized. It matters not how it comes about that the few direct the many; whether it be through physical, intellectual, or moral power; or whether the position be an inherited, assumed, or elective one, the fact remains the same. In all matters where numbers act together for a common purpose, there is and must be supervision and direction to attain the end sought. By this means the greatest good is secured; without it, no real progress could be made.

When we turn to the field of education and observe the institutions for higher learning, we find them organized on this principle. Each professor has his specific duties to perform, and enjoys the largest freedom compatible with the character and purpose of the institution; yet there is, and must be, supervision and direction over all to adjust and so unite the work of each that the chief aim of the instruction shall be attained. Not only the success of each professor, but the results of their combined instruction, depend largely upon the character and efficiency of the supervision.

When we observe the systematic work throughout the several schools in cities where good supervision prevails, and compare that work and the condition of these schools with that which may be found in an equal number of schools where each teacher is left to follow the faulty methods of her own school-days, with no counsellor, skilled in the art of teaching, to point out the better way, the widely-differing work and condition of the two classes of schools proclaim the value of supervision. I do not say that individual schools, without general oversight, may not produce results equal to those found under the best supervision. There are many teachers who, by their own efforts and wide experience, become skilled in their work and attain the best results; but the aggregate of good results in schools, under intelligent supervision, is far greater than in the same number of schools without it.

It is a lamentable fact, that teaching is more commonly governed by tradition and imitation than by an acquaintance with the laws of mental development and the acquisition of knowledge. The usual processes of teaching are too largely mechanical; and in a majority of instances they differ chiefly in the industry and tact of the teacher. Efficient supervision can do much toward changing this condition to that better state in which the schools shall be pervaded by a more intelligent employment of adequate means of instruction, based upon the art of teaching, and a knowledge of the science of education.

STANDARDS IN EDUCATION.

A teacher may, indeed, compare the results of one period of his work with those of another period, and note the relative progress in that work; but he cannot measure his own work by itself, and thus determine its true quality. He must have a standard for measurement. Standards are not made by a single observation. To obtain accurate results of any kind of work, and arrive at correct conclusions as to its character, comparisons must be made under many conditions, and extended to a multitude of cases. So a teacher's methods and the result of his instruction must be compared with those that have been proven to be good by a long series of practical experiments, made under a great variety of conditions, and tested by the principles of education, before there is certainty that the methods are correct, and the standard of results such as to become a proper guide in the work of instruction. Indeed much of the poor work that is done in the schools of to-day, both in the city and in the country, is the result of false standards as to what constitutes *real education*. If the standard of the pupil's attainments, and the aim of the teacher, are measured and directed by the pupil's knowledge of the language that relates to and describes the subject, rather than by his clear comprehension of that which is described,—the thing, or the subject-matter itself,—then his *per-cents represent fictitious values*. It is a question of serious moment, and deserves the most careful consideration of teachers and school superintendents, whether, after all our examinations to inquire into the results of teaching and to determine what real knowledge has been actually attained by the pupil, we do not commonly base our conclusions upon the language which the pupil repeats, merely from memory, rather than upon the facts which he has so acquired that they are incorporated with the organic life and become a part of his mind. Real knowledge of things implies perceptions of their *resemblances* and *differences*. The learning of descriptions of things does not insure such perceptions. The pupil may repeat the definition of 'isthmus' and of 'strait,' and be able to point out and name each on an outline map, without observing their resemblances, — both narrow, both connect larger portions, both separate,—or the fact that the chief difference exists in that of which they are formed,—one of land, the other of water.

Suppose the pupil recites correctly the following or similar definitions ot cases of nouns:

> "*The Nominative Case* is that form or state of a noun or pronoun which denotes the subject of a verb"; or, "*The Nominative Case* of a noun or pronoun denotes its office as subject or as attribute complement."
>
> "*The Objective Case* is that form or state of a noun or pronoun which denotes the object of a verb, participle, or preposition"; or, "*The Objective Case* of a noun or pronoun denotes its office as object complement, or as principal word in a prepositional phrase."
>
> "*The Possessive Case* is that form or state of a noun or pronoun which denotes the relation of property."

When these definitions are correctly recited his lesson is considered perfect, even though his understanding be so obscured by the terms used in the definitions that he has only a cloudy conception of what it means. Instead of requiring the pupils to learn and recite such definitions, suppose they be led to notice that the *nominative case* belongs to a noun that *does something;* that the *objective case* belongs to a noun that *has something done to it;* that the *possessive case* belongs to a noun that *owns something;* would they not get clearer ideas of those elements which imply real knowledge concerning the cases of nouns,—their differences and some of the resemblances? Cases indicating similar false standards might be multiplied, but those cited will illustrate my point. Questions of this kind are not likely to be investigated by teachers who follow in the footsteps of their predecessors, teaching chiefly by imitating the processes employed when they were pupils, without inquiring whether those methods are such as will lead to the best results or not. Individual teachers may give this matter such attention as to greatly change and improve the character of their own teaching, but the interests of children, in the greater number of other schools, demand that improvements in the character of the teaching shall be made so general as to reach and benefit all schools, instead of being confined to a few. This desirable end can be attained in no other way so readily, and so cheaply, as by and through the efficient oversight and direction of a superintendent.

QUALIFICATIONS AND DUTIES OF A SUPERINTENDENT.

Having directed your attention to the great necessity of supervision when many are employed in the same occupation, and where a result is sought to be accomplished by combined efforts, and indicated the general condition of schools without oversight and direction, I will now proceed to consider some of the more specific matters of school supervision. By school supervision I mean that kind of administration in the affairs of a village or city whereby the general direction of several schools are intrusted to one or more persons whose duties and powers extend over all. In no department of human industries is the necessity for skill so great as in that of school supervision. The turning-point of success in this field of labor is the skill and good sense of those placed in charge for the direction in matters pertaining to public-school education.

A School Superintendent, by virtue of his position, ***has the oversight*** and general management of several schools with ***the power of direction.*** He is an *examiner,* that he may inquire into and determine all matters pertaining to qualifications of teachers and pupils. He is an *inspector,* that he may make a careful survey to ascertain the quality of the teaching, the character of the management, and of detecting whatever may be wrong in matter or method, and of pointing out the means for correction. He is a *supervisor,* that he may oversee carefully, advise wisely, and organize and direct intelligently. A real Superintendent must be more than a teacher, — more even than a merely skilled teacher. He must have made himself familiar with the best methods of teaching, with their tendencies and results. He must be able to determine from the processes employed by the teacher what will be their effects on the pupils. He must possess deep and broad views of education in all its relations to the mind of the child and of the man. He must be able to distinguish ***a plan of teaching*** from a system ; ***a method of instruction*** from a principle of education, and to organize and adjust the school-work in all its parts, so as to secure a proper completeness in the system.

A Superintendent should be an earnest apostle in the gospel of education. Above all, ***he should feel the inspiration of his work more than the dignity of his office.*** His general bearing toward the teachers, and in the school, should inspire confidence in his justness, impartiality, and intelligent appreciation of their wants and rights, and lend influence to his friendly counsels ; and banish all undue fear from pupils and teachers. He should be both a critic and a teacher of teachers, — apt and skilled, not only in detecting failures in the results of the teacher's work, but quick in discovering the cause of the failure, and able promptly to suggest a reasonable means for its removal; and, if necessary, to illustrate the manner of applying the remedy in the given case. This is a matter of very great importance in schools where teachers of inexperience are employed, — and very few schools are without one or more of such, — because judicious criticism and proper instruction may guide the teacher to commendable success, and save many children from the evil effects of poor teaching. And, furthermore, should it become necessary to give a final verdict of failure, under such supervision, it would be accepted by the unfortunate teacher as a just decision upon unimpeachable evidence. In this connection I desire to add, that the mistakes of a teacher should not be proclaimed before the class, and the respect of the pupils thereby withdrawn; yet the mistakes should be candidly and kindly pointed out, and the way shown to avoid them. Such a course will carry with it all the value of a command to the teacher, and as surely lead to better results. But second and third failures, and neglect of the means previously shown for overcoming them, deserve reproof; and, in positive cases, a removal should follow in the interests of the children.

A Superintendent should be as vigilant in discovering the *good* work as in detecting the *bad* work of the teacher, and commendation should be wisely given whenever deserved. Just commendation is a duty, as well as just criticism, and frequently the influence of the approving words will be far more useful than words of censure. Reticence, in cases where the reasons of approval or of disapproval are positive, will not tend to inspire teachers with proper confidence in those who oversee and direct. In short, the supervision should be so administered that teachers will feel that *their* interests and those of the pupils and the superintendent are inseparable; yet the fact that the schools were established, and are to be carried on for the benefit of the pupils, should be most prominent in their management.

The greatest value of the Superintendent is seen in the improved condition of schools, and the increased good results in the instruction of the pupils under his oversight. The salary paid to an efficient Superintendent is the most remunerative investment in a school system. By means of his systematic directions the returns from the several teachers, in improved instruction, in time of pupils saved, in better results accomplished, will be increased from ten to fifty per cent., according to the skill and experience, or the lack of them, which the same teachers would manifest without such supervision. By means of his guidance the instruction is unified throughout the schools; the studies of each grade are carefully adapted to those of the following grades; and the work of each succeeding class is properly built upon that of the preceding classes; thus the combined work of all the teachers in the course lead to harmonious completeness; and the effect upon the teachers is to make the poorest work better, to improve that which was good, and render the best instruction more effective. The good methods of one school are communicated to other schools, and the average results in education are raised. In view of the many advantages afforded to pupils and teachers, under efficient supervision, it must be admitted to be wise economy for each city and for the town or county to secure good Superintendents for its schools.

RELATIONS OF SUPERINTENDENT AND BOARD OF EDUCATION.

It is now proper to consider some of the relations of a School Superintendent to the Board of Education which appoints him. His duties require him to be to the Board distinctness of vision and accuracy of hearing, that through his careful observation they may know the true condition of each school, in relation to all matters for which the Board has neither time nor special fitness to inquire; and he must be their voice for directing in that which pertains to the general organization and management of the schools. He is the proper executive officer of the Board, so far as the internal management of the schools is concerned. By common consent Superintendents have an influential voice in the arrangement of the courses of study, in the methods of instruction pursued by the teachers, in the selection of text-books, in determining the qualifications of teachers, and in other important items of school-management. A Superintendent should be held responsible for results in the school under his care; and to this end he should be allowed all necessary powers, privileges, and helps. In matters pertaining to his professional duties he should be allowed to work without hindrance. On the matter of the rights and duties of Superintendents the following remarks by W. H. Payne, in his "Chapters on School Supervision," are worthy of special attention:

> "Nothing is more fatal to the harmonious working of a school system than a misunderstanding of the relative powers and duties of the Board and the Superintendent. The Board, as a governing body, should permit no trespass on its exclusive privileges; but, at the same time, there should be left to the Superintendent a full scope for the performance of his duties as they may be defined by contract or otherwise. It is not difficult to see how a man, conscious of his ability to do the work required of him, may be annoyed by needless interference; nor how such interference may be a real trespass on his rights. The mere fact that a man is placed in charge of such interests should be a guaranty that, while in the performance of his duties, his professional rights will be respected. When a physician is summoned to the bedside of an invalid, he is for the time invested with cer-

tain prerogatives which should shield him from dictation and interference. The fact oJ his being summoned is a virtual acknowledgment of his competence; and so long as he is in charge of the case, no one has a moral right to dictate his method of practice. Competent and honorable men are made better by being trusted. They will accomplish more and better work if confidence is placed in their discretion and ability. If a Superintendent cannot be trusted to do the work which belongs to his profession, he should be discharged, and the management of the schools placed in competent hands.

" As the general success of a school depends very largely on the quality of its teaching force, and as the Superintendent is expected to secure efficient instruction and discipline throughout all departments, it seems wholly reasonable that he should have some voice in the selection of teachers. In this matter the Board and the Superintendent should act concurrently. While the latter has no right to employ teachers on his own authority, it is certainly right that his opinion on their fitness should be respected. It is conceivable that, through favoritism, he may recommend those who are unfit; or, through unworthy motives, may stand in the way of those who are deserving; but there is an effectual remedy for this evil, in a change of Superintendent. By confiding, to some extent, the selection of teachers to his judgment, he is made to feel a personal interest in their success, as a failure would be a direct reflection on his sagacity and general ability. Besides, when teachers know that their positions depend, in some measure, on his estimate of their fitness, they will apply themselves the more earnestly to the execution of his plans."

RIGHTS OF TEACHERS UNDER SUPERVISION.

The question may now be asked, What are the rights of teachers under a Superintendent? In answer to this it may be said, Hold teachers responsible for results ; aid them by suggestions and advice, and allow them all possible freedom in developing their plans and methods. A teacher's methods should have a large element of personality in them. Successful methods cannot be copied bodily, and their success transferred with them. Resemblances in good methods should be typical, rather than *fac-similes*. Teachers should notice all good methods, and borrow from them ; but their success in the use of them will depend upon the degree to which they make the methods their own. For this reason teachers should be encouraged to devise methods in view of the personal needs of their own pupils, and to test them by well-established principles of education. It is on this basis that a teacher's growth in skill and ability must be founded; but the vital element must proceed from the individual. Teachers are guided by, and learn much, from the Superintendent; and he is largely indebted to good teachers of independent thought, and hearty loyalty for his own success, and is honored by the success of his teachers.

In the matter of granting licenses to teach, great care is needed. To ascertain the literary qualifications of the candidates, there should be first a written examination, and that followed by an individual oral examination, which, to some extent, may be based upon the results of the written one. Copies of the written examination should be preserved, and also tabulated results of both forms of testing the literary qualifications. Such records are necessary as evidence of good judgment and fair dealing by the Superintendent, and of final justness for the candidate. Added to the literary qualifications, evidence must be furnished as to *character*, *habits*, and *general condition of health*. Having received satisfactory evidence as to these three points, there yet remains to be determined by the Superintendent the most important qualification of all,—one which can be ascertained only by actual work at teaching. In relation to this matter, experience has shown that the best plan for city schools is to grant a *temporary license*, which shall be complete and final as far as relates to the first three points of qualification,—literary attainments, character, and health,—but *temporary* as it relates to ability to manage a class successfully and to teach intelligently. This temporary license may be given for six months or one year. After a suitable length of time, with opportunities for varied experience, and satisfactory evidence of ability to teach has been obtained, the license should be made *permanent*, and remain in force during the period of employment in the same general kind of instruction. In case of failure the temporary license expires by its own limitation, and the teacher leaves school without removal.

ORGANIZATION AND DIVISION OF THE WORK.

It seems proper that a few suggestions should be added as to the organization and division of the labor in a department of school supervision in cities where assistant Superintendents are necessary. The matter as to the number of assistants needed must be determined somewhat by the location of the schools, and by the relations of the several principals of the schools to their respective class-teachers, and even where these relations and conditions are the most favorable, if a thousand teachers are employed, there should be *at least two* assistant superintendents. Where two thousand teachers are employed there is abundant need for five assistants, to secure thoroughness and efficiency in the supervision. In this estimate it is not contemplated that the superintendents shall examine the several pupils to determine their fitness for promotion from grade to grade, nor from one school to another. This kind of examination properly belongs to the principals of the schools, who should act under the general directions of the Superintendent. The time of the Superintendent can be more profitably employed in inspecting the character of the teacher's work, and the general management of the school. The chief purpose of his examinations may be to ascertain the value of the methods of teaching employed, the nature of the results attained, and the general progress of the class, while it also becomes the means of determining what changes in the modes of instruction, if any, are needed, and the appropriate directions to be given to the teachers.

The organization of the Superintendent's department and the distribution of the work should be such as to insure unity of plans, and completeness and symmetry in the entire system. Then it is desirable to have assigned to each assistant a special work in the supervision; and, as far as practicable, each should be considered responsible for the proper administration of the school-work in his particular department. It should be his duty to inspect the work of the teachers, and to advise and direct them in all matters pertaining to that under his special oversight; and to report the character of the work of each teacher, and the condition of the school, to the chief Superintendent.

In order to insure harmony and system in the entire management of the schools, each assistant must be under the general guidance of the chief Superintendent, yet each ought to possess freedom in all matters relating to the minor details of carrying out the work assigned to him. Furthermore, the chief matters relating to the work of each assistant, and all general work, should be carefully considered by the entire Board of Superintendents, and ample discussion had upon all important steps proposed in the system before they are taken. By this means the chief Superintendent will have the benefit of the practical experience and observations of each assistant in the special fields, and each assistant will be led to consider the true relations and importance of his work to the entire system. Whether this division of the labor among the assistant superintendents should be made *by subjects of instruction*, each visiting all the classes in every school to inspect the work pertaining to his group of subjects, or whether it ought to be made *by grades in the course of instruction*, where one Superintendent only would supervise all the work of the teachers of particular grades, must depend somewhat upon the organization of the schools and their relative locations. With three grades of schools,—primary, intermediate, and grammar,—I would advise that an assistant be assigned to supervise each grade of schools, and allow him to become an expert in his own department.

SCHOOL LEGISLATION.

I cannot well leave this subject without an allusion to the matter of school-board legislation. Definite and comprehensive by-laws should be adopted for the organization of the schools, the government of teachers, and in relation to all the school affairs; but the minute details of those matters, for which the school principal and the teachers should be held responsible, through the Superintendent's directions, and by his reports on the character of their work to the Board of Education, should not be enacted into specific by-laws, rules, and regulation-tracks, which require unnecessary efforts to follow, and thus cause a serious loss of the pupil's time, and diminish the results of the teacher's instruction. However beautiful a system of such minute legislation may appear in annual reports, its evil effects generally exceed the good thus accomplished. Let Boards of Education adopt comprehensive by-laws and general rules for the government of pupils, teachers, principals, and superintendents, and leave the specific details pertaining to each to the intelligent management of principals and the Superintendent's department, holding all and each responsible for the attainment of satisfactory results in education, and good schools will be secured.

THE ORIGIN AND GROWTH OF THE KINDERGARTEN.

BY MISS ELIZABETH P. PEABODY.

On the 21st of April, 1882, occurred the centennial birthday of Frederick Froebel, whose word, if not the last, is certainly the *latest*, revelation of the method of education. It is an interesting coincidence that this prophet of a new departure in the art of arts was born simultaneously with the independence of our nation, which was a new departure in the organization of human society. The year 1782 was the next after the close of the Revolutionary War, and the year before the formal acknowledgment, by Great Britain, of the independence of the United States of America, — the first nation in recorded history professing to derive the power of civil government from the consent of the governed. The coincidence was no accident, but the legitimate evolution of a new era in the science of human nature. We say *science*, which means generalized and formulated knowledge as discriminated from that intuitive knowledge which is seized by the imagination and appears at first in the symbolic poetry in which the literature of all nations begins. For poetry is the vernacular of the spiritual in man. "Simple, sensuous, and sublime" (according to the definition of Milton), it integrates the whole truth apprehended by the heart as well as by reason, which last sees the parts in relation to the whole, and which it is the function of prose to analyze and generalize into a scientific formula. Hence poetry is anterior in the history of the human mind to prose, the imagination preceding the understanding in the consciousness of the individual. The poetic vision is not affected by education, though the power of expressing it may be. Imagination is spontaneous,—the self-activity of the mind. The understanding grows by sense and the intuitional perception of particulars and the laws of the material universe, and therefore proceeds by analysis. The development and conduct of the understanding is education,—*i. e.*, the help that the experience of age offers to the inexperienced in respect to the lore of space and time, in which alone age has the advantage of childhood. It was the doctrine of Froebel (in this he is identical with Jesus Christ) that the child teaches the adult, though unconsciously, more than the adult can teach the child consciously, for it is the original laws of thought and life which, unawares, the child reveals to the studious mind, while the adult essays to teach the child the laws of things, by guiding to practical issues his spontaneous play with other children, and upon the of teachers, and in relation to all the school affairs; but the minute details of those matters, for which the school principal and the teachers should be held responsible, through the Superintendent's directions, and by his reports on the character of their work to the Board of Education, should not be enacted into specific by-laws, rules, and regulation-tracks, which require unnecessary efforts to follow, and thus cause a serious loss of the pupil's time, and diminish the results of the teacher's instruction. However beautiful a system of such minute legislation may appear in annual reports, its evil effects generally exceed the good thus accomplished. Let Boards of Education adopt comprehensive by-laws and general rules for the government of pupils, teachers, principals, and superintendents, and leave the specific details pertaining to each to the intelligent management of principals and the Superintendent's department, holding all and each responsible for the attainment of satisfactory results in education, and good schools will be secured.

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On the 21st of April, 1882, occurred the centennial birthday of Frederick Froebel, whose word, if not the last, is certainly the *latest*, revelation of the method of education. It is an interesting coincidence that this prophet of a new departure in the art of arts was born simultaneously with the independence of our nation, which was a new departure in the organization of human society. The year 1782 was the next after the close of the Revolutionary War, and the year before the formal acknowledgment, by Great Britain, of the independence of the United States of America, — the first nation in recorded history professing to derive the power of civil government from the consent of the governed. The coincidence was no accident, but the legitimate evolution of a new era in the science of human nature. We say *science*, which means generalized and formulated knowledge as discriminated from that intuitive knowledge which is seized by the imagination and appears at first in the symbolic poetry in which the literature of all nations begins. For poetry is the vernacular of the spiritual in man. "Simple, sensuous, and sublime" (according to the definition of Milton), it integrates the whole truth apprehended by the heart as well as by reason, which last sees the parts in relation to the whole, and which it is the function of prose to analyze and generalize into a scientific formula. Hence poetry is anterior in the history of the human mind to prose, the imagination preceding the understanding in the consciousness of the individual. The poetic vision is not affected by education, though the power of expressing it may be. Imagination is spontaneous,—the self-activity of the mind. The understanding grows by sense and the intuitional perception of particulars and the laws of the material universe, and therefore proceeds by analysis. The development and conduct of the understanding is education,—*i. e.*, the help that the experience of age offers to the inexperienced in respect to the lore of space and time, in which alone age has the advantage of childhood. It was the doctrine of Froebel (in this he is identical with Jesus Christ) that the child teaches the adult, though unconsciously, more than the adult can teach the child consciously, for it is the original laws of thought and life which, unawares, the child reveals to the studious mind, while the adult essays to teach the child the laws of things, by guiding to practical issues his spontaneous play with other children, and upon the things of nature. What the disciples of Froebel claim for their master is not greater insight into spiritual and philosophic truth than Plato and Aristotle, and all the other great educators down to Rousseau and Pestalozzi had, nor even than the common sense of mankind divines; but they do claim for him the exceptional practical ability of so applying those truths as to guide children to grow into an equipoise of heart and mind that shall produce productive activity in individuals, and harmonious progressive society, in that infinite variety of form which charms us in material nature all the more, when we see the underlying unity which corresponds to the one Father of us all who "live and move and have our being" in His, where

" Eternal form doth still divide
The eternal soul from all beside,"

giving us for our destiny, instead of the Nirvana of the Buddhist, or absorption in the ocean of Brahm, "the communion" with each other and with the ineffable Father, of "the just made perfect."

The proof of the superiority of this method of Froebel is that he found the end in the means, and never forgot the means in the end. The opposite poles of self-respect and generosity, and the relation between them, must be comprehended in the play of the children with each other and upon nature, doing justice to their relations with God and man; and they are taught at the same time to observe the correlations of nature that formulate the thinking of God (which is nothing less than perpetual creation), and are therefore encouraged to play into these correlations imperatively, with the intelligent purpose of making them an instrumentality to work their own bidding to the ends of benefit and beauty. Hence the self-respect of children is to be cherished, or, where it has been previously wounded, restored, by treating them with a tender respect and generosity, taking the form of the *patience of faith* in all those cases which bad inheritance or previous bad education has made difficult.

The absolute change of educational method taught by Froebel is an elimination of all the willfulness of the kindergartener, who should identify her energy with absolute law, in which she hides, as it were, her own personality. Hence the preparation of the kindergartner comprises religious and moral, as well as intellectual, exercise on her own part. The ground of self-respect and freedom to will is the child's relation to God, which is filial and joyous; and the kindergartner cannot do justice to it without she is joyously filial herself, as she will be if she comprehends and acts upon the doctrine of childhood given by Jesus Christ in full, and, in various degrees, by all the spiritual religions of the world, as well as by the spiritual philosophy of Zoroaster, Pythagoras, Socrates, Plato, and Aristotle (for their doctrines are all the same in essence). Zoroaster's doctrine of guardian "angels (Ferooahs) beholding the face of the Father in Heaven," is indorsed by Jesus, who quotes this Persian expression, which had evidently become proverbial among the Jews after they were delivered from the Babylonian captivity by Cyrus; and it is only a poetic form of the Platonic doctrine of ideas as *constitutive* by the human soul, and of the Aristotelian doctrine of the mind as a complex of the laws of thought corresponding to the laws of things. All these forms of expression verify the primeval intuition of the human race, preserved in the venerable Hymn of Creation, which stands as the first chapter of the sacred books of the Hebrews, and bear internal evidence of being the most ancient of sacred Scriptures. This intuition, or revelation, is, that man is the *breathing* of Elohim (the supernal powers translated God) into the body, which was the last and perfect evolution of material forms, and thereby is man commanded (inspired) to exercise dominion over everything except his fellow-man, in virtue of his being the image of God.

Man is born in generations (created male and female) to the end of a mutual education and progressive growth of the race, each generation shedding its finite limitations and commencing anew in every individual child, in spite of the necessary effects of physical heredity which obtains, as Moses intimates, "to the third and fourth generation," while the divine inheritance increases forevermore.

And for the same reason that a benignant, intelligent, and joyful piety is an indispensable part of the preparation of a kindergartner, if she would do justice to the child in his relation to God, and help him to the habit of joyous thanksgiving, which is the uttermost development of a child's religion; so, in order to do justice to the child's relation to his kind, she must herself be sympathetic and practically just, of kindly temper, generous disposition, and quick of imagination to put herself into the place of the child, whose selfishness she will always find skin-deep, and whose generosity *intrinsic* and all-prevailing if touched into intelligent life by the simple quesiton, "How should you like your little companion to do to you in similar circumstances?" We have heard many kindergartners say,—and we believe it is the experience of all,—that in their attempts to guide children into sweet courtesies and noble generosities to each other, they have found themselves self-reproved by comparing themselves with the children in their own temper of heart and mind and habitual conduct in life; and it is the testimony of all the charitykindergarteners, that the poor parents are continually expressing gratitude for the moral influence their children bring from the kindergartens into their dreary homes. "Mother does not beat the children half so much since they have been in the kindergarten," said a girl of sixteen. "She thinks your way is the best." "The kindergartener says God gave us our hands to do kind and beautiful things with, not to strike and hurt," said a little child to its mother, who had boxed its ears for some trifling misdemeanor. (The mother herself repeated this speech to the kindergartner with repentant tears.) "My boy is as polite as any gentleman since he has been to that kindergarten," one forlorn-looking laborer was heard to say, in a tone of gratified pride, to another, on Harvard square, Cambridge, in the time of the panic, when multitudes had been thrown out of work and degraded by idleness, having almost entirely lost their self-respect, and needing the elevating effect that was produced upon them in a marked manner, by finding in their own children proofs that all the possibilities of beauty were to be found in the fruit of their own loins.

This reaction of the children on their parents was one of the delightful surprises of the first charity-kindergartens. A multitude of touching incidents might be cited, but there is space in this article only for one, which is also the most remarkable one known. There was a child of four years old in one of the free kindergartens of St. Louis who had a wonderful voice for singing,—like Nilsson's or Jenny Lind's,—so superior that it could be clearly distinguished when all the children were singing together. People were in the habit of going to the kindergarten to listen to it. The parents of this child were very poor and lived over a low saloon, and were in the habit of letting out the little thing to the saloon-keeper to carry around the glasses of beer to the customers, accompanying the act with a song to each, for which the parents were paid a trifle; but soon the kindergarten revealed the child in such a light to the mother that she put a stop to this profanation of childish innocence, foregoing the money. Some time after, the manager of a dramatic circus company offered the parents five hundred dollars a year for the services of the child as a singer. The mother replied that she must consult the kindergartener, who, by asking her one or two questions, in a few minutes determined these poor people to refuse the offer lest the child should be injured! A subsequent offer from another party, of an hundred dollars *for one night*, was also spurned; and it need hardly be added that this little Emmanuel "saved her people from their sins." This redeeming vocation of childhood, so emphatically taught by Jesus, is also exemplified by the effect upon the kindergartners of their inter course with the children. They begin to feel it even in the training school. Nothing is oftener said there than that their study has opened to them a new idea of life. "It is simply unutterable!" was the exclamation of one. "There never were such effectual unpharisaic missionaries among the poor as these little children," said the charity-kindergartner of the Anthon Memorial Church of New York. "There has not been half so much claim lately upon Mrs. Shaw for charitable assistance from the parents as there was at first," said the inspector of her charity-kindergartens in Boston. Is not this method of developing the human being, perhaps, the second coming of Christ, whose triumphs, the prophet says, "a young child shall lead"? Is the Christ-child anything but *childhood received* in the name of Christ? That the gracious effect of the reciprocal manners of the children, and the kindergartners who act out the method of Froebel, is felt by the latter as well as by the former, was observed in a special case. It was that of a kindergartener of wretched health from infancy, and who had had a life of great trial for self-support as a teacher, and while able and faithful to the principles imbibed from one of the best normal trainers, was of so querulous a habit of mind and of so jealous a temper, and had so little imagination, that she seemed unable to conceive that sincerity of character might consist with courteous manners; and that a delicate timidity of temperament was not necessarily a want of moral courage and integrity; so that her countenance became most repellant, and her usual conduct toward adults unpardonably belligerent; but when looking at the children in the kindergarten (and only then) all this ugliness of aspect passed away from her countenance, which became absolutely sweet and benignant as she exchanged beaming looks with them!

Again, it may be asked, whether Froebel was new and original in giving the religious and moral development of children the leading place in his theory of education? and again it must be acknowledged that he was not; that the *theory* of education has always put this in the front rank. But that in which Froebel in these regards is new and original is in his method of procedure, in that he proposed that children should be exercised in play to the sound of music, — like Plato, who said that unless children learned the power and charm of law in beautiful games in their youth, they would not be likely to seek to obey laws in more serious actions when they grew up. Most popular child's play is the tradition of beautiful games and symbolic dances that in the primeval civilization constituted the forms of worship to the more benignant gods, who embodied the happiest religious instincts of the nations in their infancy. But despotic governments, both monarchical and ecclesiastical, have, even in Christendom, so shadowed religious truth with cruel dogmas and superstitions that the natural religion of childhood has not been cherished, and false impressions of God have been conveyed by the words and actions of even sincere and well-meaning elders, who, instead of practically following the precepts of Christ and *becoming* little children, who were received as embryo Christs,* genially cherishing their communion with God and helping them to name Him 'Heavenly Father,' have attempted to hide their own — may we not say *actual agnosticism*, by expression of what they thought they *ought* to feel rather than what they were feeling. Even in the best cases there is apt to be the notion that we are to teach children by words that there is a God, instead of *taking it for granted* that He is present to their hearts, and teaching them to thank Him for the life and joy they feel within themselves, which can only come from His presence, and which is manifested to those who have eyes to see, in the disproportion of their joyfulness and love to the occasions that seem to call them forth, and even in the bounding upward of the little bodies in direct opposition to all the force of the earth's gravity, as well as by the power of their childish fancy to make grotesque combinations of their impressions of things, by means of words, in sovereign recklessness of the order of nature, "*making believe*" *the impossible*, as,—

> The cow jumping over the moon,—
> The little dog laugh,—
> The dish running after the spoon.

But we must not forget the strictly intellectual part of Froebel's method. Even the most pious and morally-beautiful kindergartner, however truly she may love children, may still fall far short of what Froebel proposed a kindergartner should do for them, unless she has knowledge herself as an intuition, as it were, of nature and its laws, and the mind's relation thereto, ready to recur at a moment's notice in familiar illustrations (for the *abstractions* of natural science are not to be taught to babes). If she is ignorant in this respect it will even impair her power to develop the children religiously and morally. The intrinsically free children of God are sent into inexorable nature to be developed into self-conscious individuality by the action upon them of necessary laws, and the reaction of their free will consequent. In order to do the intellectual work of the kindergarten, the kindergartner must herself have a trained intellect, and this she gets only in the training school inaugurated by Froebel, where she makes herself a little child practically, and begins to play with things as children do, only in an orderly and not accidental manner. It is the *order* of nature which forms the human understanding. "The laws of thought correspond to the laws of things," and things must be presented, therefore, in the rhythms of nature; for the particulars of nature are so multitudinous that they would,—instead of forming,—*distract* the human understanding, unless classified.

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* "Of such is the kingdom of Heaven." "He that receiveth a little child in my name receiveth me, and he that receiveth me receiveth Him that sent me."

The object-teaching of the children in Froebel's kindergarten begins in a more natural manner than Pestalozzi taught it. The child is led to produce the object to be analyzed, in which case we are sure that it will command his attention. When he has put together his blocks, so as to make something that resembles, to his fancy, a chair, a house, or whatever, it is pretty certain that he will be willing to answer questions about it, and to dwell with interest upon the way in which he made it, even though it was dictated at first. If it was dictated, it is pretty certain that he will knock it down and rebuild it all by himself; and, by letting him tell what he is doing or has done, analytically, he begins to put the outward world into language, which is that which connects the outward and inward reciprocally, and makes the beginning of an intellectual world to him. Talking over objects and expressing them, when they are before the eyes, will not fatigue his mind, and will insure that the words he uses have contents to him,—*i. e.*, that he understands them. Froebel has taken care so to shape the blocks that they shall be the simplest elements of form and embody the intuitions of every sane intelligence, thus laying the certain foundations of a faith in truth. This degree of mathematical knowledge the teacher, if ignorant of it before, has learned in being trained to Froebel's use of the gifts in the children's play.

Because He is love, the Heavenly Father does not throw the tender children upon the rocks of necessity unguarded. He gives the child a loving mother, or nurse, to cling to, whose tender caresses combine the sense of union with that sense of otherness of being which makes love possible and spontaneous, that self-emptying impulse which succeeds in recovering the first sense of unity. The gentle pressure of a tender embrace is necessary, that the child may not lose this satisfying sense of unity amid the multitude of impressions made on the senses; for a child, at first, as Froebel says, does not separate himself from that which he touches, tastes, smells, sees, and hears, and is for some time without the active perception of the *not me*, as such. In analyzing, in his explanatory notes, the nursery play, which is the same in all nations and ages, Froebel shows how gradually the child makes this distinction and begins to get that consciousness of a separate individuality which is never complete till he stands unsupported and can run alone, which does not take place in the human being at once, as it does in the lowest forms of life. The smallest insects are endowed at birth with absolute knowledge of their relations and scope of activity, and proceed to fullfil them as unerringly as the magnetized needle turns to the pole. The child, on the other hand, who is to come into the widest relations of any finite being, is born utterly ignorant and entirely helpless, and would die in an hour unless he were taken care of by those around him! Gifted with a sensibility both to pains and pleasure, and with a force of will *immeasurable* and which eternities shall not exhaust, he has no intelligence to guide his will to the gratification of his sensibility. His intelligence is a seed awaiting the nurturing help of the intelligence of others, who call it forth by so placing the child in relation to the forces and forms of nature that it shall not be wounded or distressed by them, but receive agreeable impressions which excite to the voluntary act of perception. This act of perception develops its organ to greater and greater sensibility. The mother or nurse is guided in her tentative action upon the child by its own smiles or cries, and consequently even in the process of the child's coming into relation with so much of nature as is contained within its own skin, and with the forms, colors, sounds immediately in contact with its body, it is the child that gives the initiative. The kindergartner thus gets the first principle of the New Education.

The second principle of Froebel's method is simultaneously required, which is, whenever it is possible, to divert any activity of a child which would involve pain or harm by presenting a motive for an analagous activity that shall be salutary instead of harmful, and give a pleasant instead of a painful experience. The Divine Providence which interposes a mother between the new-born child and the hard realities of material nature, to shield its sensibility from too hard reactions of that nature, will, when the child is old enough to reflect and appreciate her kindness, feed the heart with a sense of the tenderness of God; and meanwhile it cherishes that grateful love for the human which, by-and-by, shall flow out toward the Divine goodness. Throughout the period of tender infancy, which continues as long as the kindergarten era lasts, it should be a principle with the kindergartner to embody in herself the Divine tenderness of Providence, while giving the child the initiative in his action upon nature, and also to furnish the conditions of order for his thinking.

A third principle that the kindergartener must observe in bringing the child into a realizing sense of his relation to nature is, to let him *touch*, and, as soon as possible handle, the elementary forms. It is his instinct to stretch out his hands to whatever he sees or hears, and whatever he grasps he endeavors to bring to his mouth, where the sense of touch at first became *taste*, and is seen to be a desire to identify himself with the *not me*, restoring that feeling of unity with all things *sensed* or *perceived*, that he had at first; when, to borrow Mr. Emerson's exquisite expression of the original state of consciousness,—

"The babe, by its mother,
Lies bathed in joy;
Glide the years uncounted,—
The sun is its toy;
Shines the peace of all being
Without cloud in its eyes,
And the *sum of the world*
In soft miniature lies."

But if one momentum of the intellect is a tyrannizing sense of unity, the opposite momentum is variety. The intellect cannot be developed without observing differences. By virtue of the tyrannizing sense of unity, analogies are perceived at once. Ask a child what anything looks like, and he will surprise you with the resemblances that he will find in things that to you seem different, because your cultivated perception of differences obscures the unity. Accepting his analogy, ask him what *differences* he sees in the analogous things? and then he will open his eyes; his attention will be roused, and he will take great pleasure in the activity of his power to compare. The power of classification is a corollary, as it were, of the power to perceive differences, coëxisting with the sense of analogy, but it must not be too heavily taxed at first. The human providence of the kindergartner, inspired by the loving Divine Providence, sees to it that not too many different things be given to the child to play with. The first plaything Froebel gives is a ball, the most simple of forms. He would have it red, and gradually adds balls of different colors till he has given six,—three of them red, blue, and yellow, and three of them, combinations of each of the contrasts, green, purple, and orange. It is wonderful to see how much knowledge can be conveyed to a child, and how much power developed in him, by means of these balls. He does not tire of them as long as he is in kindergarten, and indeed the ball is the favorite plaything of man. Froebel's second gift consists of three forms,—two, the ball and cube, being in extreme contrast, and one, the cylinder, combining the contrasts into one form. The simplest combinations of the opposites of form arouse without fatiguing the power of analysis. The tendency of the child in using them is to make another form differing from each of its constituents. This construction develops the creative power, which in the human being is called imagination, and it springs into activity before the understanding (which appreciates the order of things as we find them in nature) has grown into recognizable existence.*

Froebel saw that the effects of its own movements, and the products of its own activity, were the most interesting objects to the child, and would attract and absorb its power of attention, which it is so often impossible for another to command, by presenting objects *arbitrarily*, as Pestalozzi had suggested, though ever so genially. Hence he inferred that *preliminary* principle of education which discriminates his method from Pestalozzi's. Froebel sets a child to do something which will create or produce an object for his own observation and analysis. The kindergarten processes begin, therefore, with freely handling "the gifts," which are an orderly series of materials for embodying the child's fancies, whether original or suggested by the kindergartner in words. It is noteworthy that children do not wait, and are often impatient of the suggestions of the kindergartner, whether by word or deed.

Willing and imagining precedes knowing. A baby about twenty months old was seated upon the floor with a quantity of blocks four inches long, one inch broad, and one inch thick. He was observed to take up a block and endeavor to stand it, slantwise, on one edge of its end. Of course it fell as soon as he let it go, but again and again he tried; and it was pathetic to see how softly he would set it down, and how he would throw away the impracticable block and take up another exactly like it, and try to do the same thing,—of course, in vain! At last his patience gave way, and he dashed the block from his hand, threw himself back, screaming and throwing his limbs about in a passion of disappointment and anger; and his mother came running from another room to see what was the matter. An aunt, who had been watching him with interest, told her, "He was trying to make an arch with two blocks, but began with trying to make one block stand aslant first." The child had stopped crying on seeing his mother, in faith that she was the infinite power that could accomplish everything. She immediately took up two blocks and made the arch for him. The child laughed with satisfaction, but at once knocked it down, and took up one of the blocks again to do as before. The mother intervened, and putting a block into each hand of the child took his hands in hers and helped him to make the arch, at which he again shouted with delight; but all the same, he knocked it down again. He wished to do it entirely himself, but he had not observed the condition of success, and again took up one block and tried to set it on its edge. He was too young for appreciation of conditions. The case was hopeless, and the mother took the child in her arms and away from the too hard task he had set himself, and diverted him to something more within the scope of his intelligence. This was true kindergarten art on her part. The impulse of the child to action is futile unless supported and guided by knowledge, and the kindergartner is to supply the knowledge necessary for the occasion. She therefore dictates to the child how to arrange his blocks so as to make a simple form resembling a chair, or house, for instance. She then proposes that he should put the blocks back and reproduce the cube from which he took them, and that he should then begin again and do it all by himself, which is alone satisfactory to him. If he forgets the order of construction she helps him by a hint, and it is curious to see how he will begin over and over again until he can do it by himself. The interest he takes in the construction makes the materials interesting to him, and the next time, before he begins to work with his blocks, he may be induced to observe whether the form is round, or has flat sides, and whether it has corners and edges. This analytic observation must be repeated day after day, and associated with words by his naming the things and their relations, so that the words when repronounced shall bring up the image, though the object is not present to the senses. The *number* of these corners, sides, and edges, since number is the most abstract of relations, should be carefully reserved for later consideration. The child will remember spontaneously when repeated observations have sufficiently impressed them. Memory is not an act of the will, and the act of willing to *remember* prevents recollection, especially if associated with any motive of conscience, as we remember from painful experiences of our own. Intellectual *duties* are too heavy to be imposed upon little children: we must not forget that it must be all play to their consciousness. Nothing is more difficult in the training of kindergartners than to teach them that in order to cherish memory, the mind must be left to its own spontaneity. The conditions of memory should be given to the child, but he should never be *required* to remember. In virtue of the fact that the mind is *generated* by the Creator of the Universe, it is of the same essence, and has, in germs of thought, all the variety of the Universe; these germs are to be vivified by being touched into life when the things are presented to the senses. The Italian philosopher, Gioberti, postulated that the souls of men are essentially active,—that the first consciousness is intuition of God (all variety in Unity.) These souls are put to sleep in nature, and, by the impact of the severalties of nature upon the sensibility, in the course of time the intuition is gradually waked up, point by point; and as these sensations come into order the "sum of the world" will rise in the memory. Whenever we come to the perception of a law, we feel as we do on recovering a word we had forgotten, and for a while had felt but could not perceive. The art of the educator is to arrange the conditions for the child to observe things in their natural order, and what Froebel's disciples claim for him is, that he patiently observed and worked out an order of intellectual action which should bring all individuals of the race into a progressive communion, by which their various experiences might enrich each and all, more and more forever.

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*Madames Marenholz-Bülow and Middendorff erected a monument over Froebel's grave, on which they placed this second gift,—the cube, cylinder, and ball,—which is a comprehensive analysis of all form. They had not money enough to have it made of any more lasting material than sand-stone, but at the present time an effort is being made to have a monument erected of the same design, but of a more lasting and beautiful material, and all friends of the cause in all countries have been invited by the committee in charge to contribute to it.

The biographical and autobiographical memoirs of Froebel have been collected in Dr. Barnard's lately-published volume of "Kindergarten Papers." This, and Madame Marenholtz-Bülow's "Reminiscences of Froebel," the American Froebel Union is exerting itself to spread broadcast over the country as the means of educating kindergartners for all its children. Froebel's account of his own development, in his letter to the Duke of Meiningen, supplemented by the various memoirs of him written by Langethal, Lange, Barop, Middendorff, Diesterweg, Benfry, and others, make a moral impression of the possibility of purely disinterested action for the good of humanity presented by no other group of men that have appeared since the first apostles of Christ. And not only is it a moral education of the kindergartner to study and appreciate it, but it must inevitably quicken her sense of the duty of studying "the harp of a thousand strings" with reverent humility, before she shall dare to use her own plectrum upon it, seeing that these harp-strings are heart-strings, and that discords are personal agonies of pain or social crimes. The spirit of all these biographical memoirs is as unconscious with the humility that exalts as the Gospel narratives, and rebukes the proud conservatisms of pedantry as truly as the primitive Christian spirit rebuked the phariseeism of despotic ecclesiasticism, revealing the fact that true education, as Carlyle says, is the mysterious communion of the experience of age with the innocence of infancy in mutual respect. For innocent infancy is the complex of all spiritual laws, to be inforced by the elder who has already sufficiently experimented to be able to lead the younger to "walk unscathed amid the burning plough-shares of this wicked world," like the good Queen Emma of the mediæval tale. The American nation needs this lesson. The free conditions in which the coming generations are placed by our institutions produces necessarily such a rush of life from within outwards, that nothing short of the Holy Spirit itself, as it breathes through the self-devoted lover of his kind, can cope with it, and disarm it of its rampant egotism. To undertake to break the will of young America is to endeavor to cast out devils by the power of Beelzebub, and so far as it is attempted makes a pandemonium of schools. The success of the liberally Christian kindergartners, trained by Miss Emma Marwedel, over the hoodlums of California, is a revelation that renews the Pentecostal miracle; for it is translatable at sight into all denominational tongues. It is noteworthy that in free America, Roman Catholics and Protestants, and all denominations of Protestants,—Quakers, Episcopalians, Presbyterians, Swedenborgians, Congregationalists Orthodox and Unitarian, Free-Religionists so-called, Associationists, and those who expressly refuse to formulate their religious sentiments in creeds, — *all* unite in acknowledging that Froebel's method is God's method, reconciling liberty and law by purifying law of all merely *human* willfulness, and letting all issues "hang upon the two commandments, Thou shalt love the Lord thy God with all thy heart (joyfully?) and all thy might (practically?) and all thy mind (intelligently?), and thy neighbor as thyself" (generously? — observe the etymology of word *generous*.) "A new commandment I give unto you," said Jesus Christ, "that ye love one another"; and John, the theologian *par excellence*, said, "If ye do not love your brother whom ye have seen, how shall ye love God whom ye have not seen?"

Beginning a joyous, loving, progressive, productive life in harmony with the growing knowledge of "the beauteous forms of things" and their correlations in nature,—this is the method of Froebel. It was worked out through sixty years of experimenting on life in his own person, amidst the "contradictions of sinners," — for it was not until 1839 that the word *kindergarten* brought out fully, in his own case, its actual inception. Ten years after, as the Baroness Marenholtz-Bülow has told in her "Reminiscences" of the last four years of Froebel's life, he found in her (who greatly surpassed him in the power of expression) the full appreciation of his method, which he had despaired of finding in any one during his own life-time, though he did not doubt of the final fructification of the seed he was sowing in the hearts and minds of the class of kindergartners he was then teaching. The Baroness introduced him to her intimate friends of the Ducal family of Weimar, and to Diesterweg, among other distinguished guests, at Liebenstein. Both the Duke of Weimar and Diesterweg, though the latter was previously prejudiced against him, at once, and independently of each other, pronounced him "a prophet"; and the little castle of Marienthal was offered him for his training school, previously gathered in a farm-house. In 1850, through Diesterweg's influence upon Frau Johanna Goldschmidt, he was invited to lecture to parents and friends of education in Hamburg, where he established several kindergartens, a training school for kindergartners and one for nurses,—all of which are still in existence; but the training school at Marienthal was given up soon after his death, on Midsummer-day, 1852, and his widow moved to Hamburg. The instinct of despotism, alarmed at the plan of educating the human being to self-activity and intelligent, *voluntary* obedience to divine law, had, just before Froebel's death, forbidden kindergartens in the public system of Prussia, which, however, only gave them a new impetus in private liberal circles; but though the decree was countermanded within the decade, they have never become a part of the Prussian system. Nevertheless, the English Crown Princess of Prussia insisted upon having a kindergartner in her own little family, who, having afterward married one of the high counsellors of the king, still keeps a kindergarten in her own house in the neighborhood of Berlin (Madame Poesche). There is at present no country in Europe, excepting Turkey, without its kindergartens. The individuality of some remarkable kindergartners, among whom may be named Mrs. Schröder in Berlin, Madame Salis-Schwabe in Naples, Madame du Portugall in Geneva, Miss Snell in Manchester, England, and Miss Heinwart in London, are preëminent as faithful interpreters of Froebel's idea and experts in his method.

In 1867, however, a convention of philosophers was summoned in Prague to consider ways and means of applying philosophy to life, and the first question discussed was that of Education. It was fifteen years after the death of Froebel; and a proposition was made, and affirmatively voted, to form a committee to inquire into the results of Froebel's method on the pupils he had personally taught, or who had been taught by disciples in his spirit and on his method.

The son of the great Fichte, now Professor of Moral Philosophy at Stuttgart, was made chairman of that committee, and reported the next year at a second meeting of the Congress at Frankfort-on-the-Main. The report was triumphantly in favor of Froebel's methods, as his pupils had been found exceptionally superior. At that Congress, which was protracted through the week, the Baroness Marenholtz-Bülow was invited to give four afternoons to the exposition of Froebel's Idea and Method, which it was known she had introduced ten years before, by parlor-lecturing, into France, Belgium, and England, and with what result of impressions on such thinkers as the Abbé Michaud, Michelet, Quinet, the Cardinal Tours (afterwards Bishop of Paris), and other distinguished Frenchmen of different schools of religion and politics, may be gathered from the Appendix to her volume on "Work in its Relations to Education on Froebel's Method," which is the *résumé* of the lectures she gave in her missionary tour.*

The outcome of the Baroness's lectures at Frankfort-on-the-Main, together with Professor Fichte's favorable report, was the transformation of that committee into a general union for the propagation of Froebel's method, which has since that time published a paper called the "Education of the Present" (Erziehung der Gegenwart), and established a great school at Dresden for the education of kindergartners. This school commenced operations in 1871. Among its many professors is foremost the Baroness herself. If report says true, the average pupils of that school are, by previous education and intellectual gift, far inferior to the class of minds that are giving themselves to the cause in America, where many of the pupils in training are of fine genius and high culture, and possessed of a missionary spirit truly worthy of a great cause; for the occupation of kindergartner is not a lucrative one, and yet it is almost impossible to detach any one from it, so consonant is it to the best heart of woman, and so evidently the most powerful means of self-development and refinement. It suggests indeed the true solution of the woman question.

We have not time in this article to follow out the spread of kindergartens in Europe, but must turn to America for a short statement of what has been attempted here, though we have, in the space allowed us, not room enough to give a history of the past or suggestion of the future of kindergartens in America, where, sooner than

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* Unfortunately this Appendix was left out of the American translation. It is full of enthusiastic expression of acceptance of Froebel's method as an advance; more than that,—as a revolution in educational art.

Froebel predicted, it has proved itself to be in harmony of spirit and method with the government, whose theory has first exhibited historically the possible equipoise of Liberty and Law as the factors of a progressive life. Not that either in our national life, or in the education of our children, has the millenium yet been realized. The old short-comings and errors and willful wrong-doing threaten ruin to both. The fall and consequent curse is always impending over the free agent. Progress is not *fatal*, but a perpetual *moral creation*. The free-agency of man is only one with the creativeness of God when right-doing is its faithful minister, and when true thinking recognizes the laws that should govern doing.

But we have in the United States some kindergartens as excellent, if not superior, as any found in Europe. And if we have not the same thistles of conservative narrowness of institution and prejudice as they have in Europe, to choke the good seed sown by faithful disciples of Froebel, who are humble enough to study and learn with him what to do, and never to do *they know not what*, we have enemies here also to sow tares; presumptuous self-conceit that disdains to study; passion for personal gains which ruthlessly turns the sacred vocation of teachers, even in pulpits, and oftener still in the teacher's chair, into a mercantile business. We will not speak in metaphors, but relate in plain English the circumstances attending the inception of the first kindergarten,—falsely so-called,—in the United States, in 1860, which was a mistake involving disastrous consequences that are still acting to discredit the truth and hinder its full development and power.

As long ago as 1854, the first American mention of kindergarten was made in Dr. Barnard's "American Journal of Education," in which he said that the most interesting thing in the Department of Education at the World's Fair, in London, was the exhibit of Froebel's material for playful occupation for children, explained by Mr. Hoffman and Miss Boelte.

The next mention was in the "Christian Examiner" of Boston, in 1859, where Miss Parsons and Mrs. Cheney reviewed Jacob's Manual, "Le Jardin des Enfans," together with its preface by Madame Marenholtz-Bülow. This book was sent to America by Miss Macdaniel, who attended the Baroness's lectures at the Louvre, and became acquainted with her, and practised, according to her directions, on a little class of American children in Paris, whom she was already teaching.

That same year a concrete exponent of the new system was brought to Boston by her parents into a family of four fine children, whose father had a theory that children should only be dealt with as irresponsible beings before they were six years old, at which age he proposed to put on the screws of discipline. The advent of this sweet little playfellow had the effect in the house of a calm coming upon the storm of young life, and a looker-on said to the mother (who was none other than the late accomplished Mrs. Carl Schurz): "That little child of yours is a miracle, — so child-like and unconscious, and yet so wise and able, attracting and ruling the children, who seem nothing short of enchanted." "No miracle, but only brought up in a kindergarten," said Mrs. Schurz. "A kindergarten! what is that?" "A garden whose plants are human. Did you never hear of Froebel?" "No; who is he?" "A greater discoverer in education than Pestalozzi. He came to Hamburg in 1850, invited by Madame Johanna Goldschmidt at the instigation of Diesterweg, who announced him to her as a prophet. He opened lectures to mothers, and instructed children's nurses and kindergartners by precept and exemplification. All the liberal people went to hear and see him: among others, my sister, Madame Ronge, and myself; and I was so fascinated I kept a journal-report of what he said to mothers and did with the children. He was greatly delighted with my journal, and revised it; for, he said, it expressed better than his own books did just what he wanted to teach." Unfortunately that manuscript was lost in the post-office between Hamburg and Berlin, where it had been sent as a loan after Froebel's death.

Mrs. Schurz did not mention to her interested auditor Froebel's "Mütter and Kose-Lieder," published in 1839, when the kindergarten was evolved in full flower from his mind, but said she would send her "Die Menschen-Erziehung" (The Education of Mankind); and she subsequently sent her the Preface of that book, published in pamphlet form, without telling her that it was not the whole work. Out of the perusal of this pamphlet (which was an abstract statement of Froebel's idea and aims concerning the earliest stage of education), together with this conversation, and glimpse of the perfect growth of a child, grew the first practical attempt at a kindergarten in Boston, in 1860. But it was simply no kindergarten. What it had taken Froebel fifty years of suffering life and painful experimenting to work out of abstract first-principles, amid the confusions of a contradictory past, was not divined even by two experienced women, who had made child-culture their own life-work. They did keep an infant-school, which was a very charming affair to the children and to most of the parents, though such a labor to the teachers that one of them has never recovered her bodily health from the incessant strain of living *for* instead of *with* the children. But the attempt was made in good faith and for childhood's sake, not for any motive of ambition or gain; and though it was so much praised and admired that one of the teachers was beguiled into writing and printing what was done, in answer to inquiries so many and earnest that to answer them in separate letters was impossible; yet the expected results did not appear. The children being taught to read, and plied with object-lessons of a really exhaustive kind, showed the precocity that Froebel deprecated as involving future intellectual weakness and disorder,—(he called precocious knowledge the forbidden fruit),—while, by using the "gifts" and materials of occupation mechanically in blind imitation as mere recreation, and the movement plays for physical exercise only, they were exhilarated to the point of boisterousness, and became exacting of others and dependent. Froebel's method was omitted, as is done in all the so-called kindergartens conducted by those who have never mastered the art and science by means of a regular study of Froebel, in a personal training.

Because of their disappointment, and with the suspicion that there was something they did not know, one of the ladies went to Europe in 1867 to see the kindergartens kept by those whom Froebel had taught and trained. The first hour she passed in the large charity kindergarten of the Paulsenstift in Hamburg, she saw that her school had been indeed no kindergarten; and the more she saw of the best kindergartens that year, the more she felt that she must give the rest of her life to the work of abolishing the mischief she had done, and of spreading the true thing in her native land. For the popularity and some good points of her school, together with her book,—of which the publisher who owned it had sold 4,000 copies,—had multiplied imitations more or less happy all over the land. The most successful of these, financially, was in New York, and professed to be an American improvement upon Froebel; but it substituted the most vicious routine and *memoriter* exercises invented by the teacher, who professed to found her school on the unlucky book, which, however, gave no ground whatever for these substitutions. This presumptuous pretension confronted Mrs. Matilda Kriege, when she came out in 1867, under the inspiration of the Baroness Marenholtz-Bülow, to open the first training school for kindergartners in America, in connection with the kindergarten of her daughter Alma, who had been thoroughly trained in Berlin. In vain did she offer to train Miss Coe in the truth, theoretically and practically. She replied that her school was a financial success, while the true thing might not be popular. It was evident she cared nothing for the improvement of education. Despairing of starting a training school in New York, Mrs. Kriege went to Boston, in 1868, and immediately the above-mentioned school was surrendered into her hands, to be made a real kindergarten; and in its struggle for existence, with many obstacles, found the greatest one to be another imitation, long since established there, whose teacher insisted on retaining the name of kindergarten in spite of remonstrance; and the results in her pupils, from the upper class of society, discredited the Froebel method by seeming to be the fruit of it. Still the truth made its slow and sure way, and every pupil Miss Alma Kriege did have long enough to develop became an argument for the system, and made converts of the judicious.

Meanwhile Mrs. Kriege educated in her training school many admirable kindergartners, who have done good work at personal sacrifice. For, in order to do good work, it is necessary to refuse to precipitate the school upon the kindergarten, as parents are often disposed to require, and remove their children if it is not done. The kindergarten of Misses Garland and Weston, which, with their training school, has succeeded and continued the work of the Krieges in Boston, has in the last ten years developed into connecting class, advanced-class, and first-school of instruction; and from their training class has branched Mrs. Gardner's and Miss Symonds's of Boston, Miss Chapin's of Indianapolis, and Mrs. Ogden's of Ohio; and from the latter Mrs. Putnam's of Chicago, and Miss Mackintosh's of Montreal. In 1872, when Mrs. Kriege visited Europe for a vacation, Miss Maria Boelte came to New York, under the most auspicious circumstances, and commenced her kindergarten in connection with Miss Haines's celebrated ladies' school in Gramercy Park. Subsequently she married Mr. John Kraus, a German, and graduate of Diesterweg's normal school, who had been in the country many years, and in 1869 was connected with the Bureau of Education in Washington, D. C., and wrote twenty-four articles in the "Army and Navy Gazette" about that time, in which he spoke of Froebel in such a manner as to interest Mr. Arnell, M.C. from Tennessee, who wished to establish a national training school for kindergartners in the District of Columbia. But despairing of this, Mr. and Mrs. Kraus have kept their independent private kindergarten, Mr. Kraus taking the advanced class. Their quality is shown in their continued success in every way, and in the character of their "Practical Guide to Kindergartners," which Mr. Steiger is publishing serially. In the first year that Miss Boelte was in New York she trained another enthusiastic amateur, Miss Susan Blow, of St. Louis.

We have no time to give in detail the history of Miss Blow's work at St. Louis, but it was the result of two years of her private experimenting that the Board of Education adopted it as an economical measure, having, by observation, found that to give children two years of kindergartening before they entered the primary schools shortens that stage of instruction so much that it adds two years to the grammar-school term. After her first two years of gratuitous work, the Board began with paying the salaries of *twelve* kindergartners on condition that Miss Blow would select them from those she had trained, and supervise them, as they were wise enough to see both these things required an adept and expert. In the course of eight years the number of kindergartens in St. Louis has increased to seventy-five. All the while Miss Blow has kept a free training school, with the exception of the years 1876–77, when she was in Europe, and spent the winter with the Baroness Marenholtz-Bülow in Dresden. Hundreds of ladies have received her diploma, which she has never given except on examination and after observation of their success in practice; for they always become volunteer assistants in the public kindergartens on the promise of keeping up their studies meanwhile and attending Miss Blow's lectures a second year. These volunteer assistants diminish the cost of kindergartens. It has been found also in St. Louis that to assess a dollar a quarter, for the current expense of the material, on all those who feel able to pay, procures an abundance, supplying gratuitously all who are not able to pay, since it makes it possible to buy the material at wholesale prices.

In eight years a great interest on the subject of kindergarten has been awakened in the West and Northwest States, which has directly grown out of Miss Blow's successful labors, together with those of Mr. W. N. Hailman, who, as long ago as 1867, established in the German-American school, of which he was the principal, in Louisville, Ky., a kindergarten in the same year that Miss Alma Kriege opened hers in the German-American school of New York city. He removed in 1873 to the German-American Academy of Milwaukee, where, again, Mrs. Hailman (who had made two visits to Europe, where she studied the system in Zurich, Switzerland, and also in Germany), assisted him. To no one does the cause owe more than to Mr. Hailman, whose educational work led up to it, and in 1870 he published at Cincinnati his "Kindergarten Culture," whose introductory chapter gives the broadest and profoundest view of the final cause of kindergarten. The influence of Mr. Hailman on the progress of kindergarten culture in Wisconsin is quite incalculable, but it is a fact that the public authorities have decided to introduce the training into their normal schools with the purpose of making public kindergartens universal in the State. And since Mr. Hailman's removal to Detroit, where he is again principal of a German-American school, he and his wife have taught a *free* training class, carefully selecting from the applicants those whom he saw to have a vocation for the work, and consequently many free kindergartens have been opened there,—Mrs. Hailman being as great an expert as he is an adept. As he has been elected on the Board of Education of Michigan, it is expected that State will soon follow the example of Wisconsin. In 1877 he founded the monthly paper, "New Education," which the the next year swallowed the "Kindergarten Messenger," and became the organ of the American Froebel Union, which was incorporated in 1878 for the express purpose of opposing the enemy who was so early in the field sowing tares, and who still keeps busily at work to the distress of those who sow and even harvest good wheat. We must omit even the mention of many of these harvesters, but must not omit to notice the truly magnificent work done in California, as it is exhibited in the report of the three years work of Silver Street Charity Kindergarten, and the two reports of the Jackson Street Kindergartens. The last of these reports contains the constitution and doings of the San Francisco Froebel Society, whose subscribers volunteer from one dollar to ten dollars per month, year after year, because they see that it is the most vital public interest. There also reappears the enemy seeking whom he may devour. And besides the so-called "American" fraud, there are the unscrupulous young prophets of the truth, who run before they are sent, and so propagate a poor kind of kindergarten. Miss Marwedel and Mrs. Kraus call to account the American Froebel Union, because it "does not forbid" the newly-instructed disciples to train other teachers. But in America there can be no "head" authority but conscience, and the American Froebel Union can do nothing but essay to enlighten that by spreading the standard kindergarten literature. By the moral influence of the names of its life-members, it has already spread far and wide the important impression that there is a great difference between professed kindergartners, false and true. The policy it has settled upon is to get as many annual subscribers as possible to pay $2.50 a year, and receive in return the monthly paper, edited by Mr. Hailman, and the worth of a dollar and a half in standard books, to study and to lend to their neighbors, in order to form a sound public opinion; for it is in vain to train kindergartners unless the public is also trained to appreciate them.

EDUCATIONAL MOVEMENTS IN ENGLAND.

A LARGE and influential meeting was held February 28 in the banqueting hall, St. James Palace, to inaugurate a movement to establish and endow a Royal College of Music. The Prince of Wales presided. The vast assemblage included most of the high officials present in London, among whom was United States Minister Lowell. In rising, the Prince of Wales said:

"I have called you together to-day, the representatives of the counties and towns in England, the dignitaries of the Church, and other religious and educational bodies, distinguished colonists now resident in England, and the representatives of foreign powers, to aid me in the promotion of a national object by obtaining contributions for the establishment of a Royal College of Music. Were the object less than of national importance, I should not have troubled you, — the heads of social life, — to meet me here to-day, and I should not myself have undertaken the responsibility of acting as the leader and organizer of the movement. I have invited to meet you the leading musicians and publishers of music, the most eminent musical-instrument makers, the most influential amateurs and patrons of music, and I trust that by the coöperation and union of these, the most powerful elements of society, we may succeed in establishing a Royal College of Music on a more extended basis than any existing institution in the United Kingdom,—worthy alike of this meeting and of this country, for whose benefit you are asked to give your time, your money, and your influence. . . . What I seek to create is an institution bearing the same relation to the art of music as that which our great public schools,—Eton and Winchester, for example,—bear to general education. On the one side you have scholars who are on the foundation, and educated by means of endowments; on the other side, pupils who derive no direct benefit from the foundation. Both classes of pupils follow the same course of study; their teachers are the same, their rewards are the same. They differ only in the fact that the collegers derive aid from the college, while those who are not on the foundation pay for the whole of their education. I lay great stress on this combination of the two systems of education, — that by endowment and that by payment. Financially, it enables us to have salaried teachers of the greatest eminence, who will give so much of their time as they devote to teaching exclusively to the instruction of pupils at the college. But more than all, a union of different classes in a common and elevating pursuit is the best mode of binding in one tie of common enthusiasm the different grades of society, varying alike in wealth and social influence. Each has much to learn from the other, and this learning is best acquired in an institution where all meet on common ground and on a footing of artistic equality. A further object, and one most material, is sought to be attained by including in our college persons who do not intend to make music their profession. To advance music as an art, in its highest aspects, resort must be had to those who possess the best opportunities for general mental culture. The most highly educated classes are those who have the greatest power of disseminating the influence of art throughout the country. They are the sources from which the civilizing stream proceeds downwards, and penetrates through every channel of our complex social life. I will now proceed to explain the details of the scheme for which I ask your support, beginning with the foundation, as being that branch of the college for which public money will be required. The least number of scholars which would be worthy to constitute a foundation for the college would be one hundred. Of these, fifty should have their education free, and fifty should be maintained as well as educated. These scholars will be selected by open competition throughout the United Kingdom. A system of examination will be organized by which every town, — nay, every village, — in the kingdom may be afforded a chance of participating in the public benefaction. . . . I wish to establish an institution having a wider basis and a more extended influence than any existing school or college of music in this country. It will teach music of the highest class; it will have a foundation for the education, and, in some cases, for the free maintenance, of scholars who have obtained by merit the right to such privileges. But it will do more than this. It will be to England what the Berlin Conservatoire is to Germany, what the Paris Conservatoire is to France, or the Vienna Conservatoire to Austria,—the recognized centre and head of the musical world. Why is it that Germany, France, and Italy have national styles of music? Why is it that England has no music recognized as national? It has able composers, but nothing indicative of the national life or national feeling. The reason is not far to seek. There is no center of music to which English musicians may resort with confidence, and thence derive instruction, counsel, and inspiration. . . . To raise the people, you must purify their emotions and cultivate their imaginations. To satisfy the natural craving for excitement, you must substitute an innocent and healthy mode of acting on the passions for the fierce thirst for drink and eager pursuit of other unworthy objects."

The Duke of Edinburgh closed an admirable speech with the following resolution:

"That this meeting approves of the proposal to establish a Royal College of Music as a national institution, and undertakes that meetings shall be called throughout the country, and the utmost exertions used, individually and collectively, to forward the movement by obtaining the necessary funds for founding and endowing a College of Music for the British Empire."

This motion was seconded in an able speech by the Archbishop of Canterbury. The Earl of Roseberry supported the resolution, as also did the Lord Mayor of London, and Mr. Gladstone and Sir Stafford Northcote. The resolution was then adopted unanimously. It is proposed to raise by private subscription an endowment fund of over $1,000,000, whose income shall realize $60,000 annually.

SOCIAL STATISTICS vs. MORALS IN SCHOOLS.

EDUCATORS have hobbies, and encourage people in other ranks of life to cherish fatal illusions. This condition of things may not be realized by teachers, but it is a grave truth still. The popular cry is that teachers are responsible in the largest proportion for the morals of the youth of the land; teachers join in the clamor, and urge no remonstrance against this thrust in behalf of responsibility. In general terms it may be said that the teachers in some States of the United States number about 6 per cent. of the population of the State, and frequently less than that, while for the entire United States the number is about 4 per cent.; this gives 200,000 teachers to the 50,000,000 population. This body of teachers is composed largely of young men and women whose influence is small and circumscribed at the very best estimate. There is no organization to unite the members of this body to promote a uniform policy; hence the sum total of moral and social power of the teachers, which can be centered upon one point regarding the policy to be pursued by them, is next to zero. These 200,000 teachers have permissive and regulated influence over the children during 25 per cent. of the hours of the day, 18 per cent. of the hours of the week, and about 9 per cent. of the hours of the year, allowing an average of thirty school-weeks to the year. The direct influence of the school extends over a period of about ten years, or from five years of age to fifteen, for the masses of the children who constitute but a fractional part of the 50,000,000 population. This period is that in which the child is timid, knowing but little, if anything, of his personal rights and powers,—neither are his ambitions or passions strong with him. The school is good, and the child is modest and obedient. At the age of fourteen or fifteen years the boy enters the life of the world; his passions, ambitions, and powers burst upon his consciousness and inflame his heart; he sees the grasp and greed of the miser, witnesses the luxury and apparent ease that wealth invites, beholds the position which political chicanery attains, reads in one of the daily newspapers the full-column reports of the sickening details of a pugilistic encounter, and the condensed notice in which the same great daily alludes to a "gathering of prominent educators at Washington, during the session of Congress, in order to influence Congress to apportion more money to the useless Bureau of Education." The boy is thus nourished upon notions of scheming, aggrandizement, luxury, and the toil of business, at a time when he is most susceptible to be influenced permanently. Of experience during the two periods of life,—from five to fifteen and from fifteen upwards,—which influences the person more? There can be but one answer to this question: the influences of school-life are at most but drops in the ocean of power, influence, and circumstance that mold the boy into a man. History shows that the schools produce only that which the governing authorities of society put originally into the conception of them. Schools are not institutions which generate extraordinary quantities of social and moral powers; they are mechanisms through which adult society transmits portions of social forces to act upon childhood; but, like all other mechanisms, a portion of the power is used up by the instrument which transmits it, — which is to say that schools are not as strong social forces as society in general. In witness of this truth, see what a pother society in the United States is making about retaining and introducing into schools the Bible, industrial education, politics, and religious schisms.

The foregoing remarks serve as an introduction to the following facts from one phase of sociology, that of illegitimacy. These facts constitute a terrible commentary upon the theories of those sentimentalists who proclaim from the house-tops that elementary schools alone are the sure road to the elevation of society. It is the pride of the United States that Massachusetts occupies a high place in her educational system and in her schools, yet her social statistics show that the births of illegitimate children increased from 1,625 to 2,766 during the last decade, giving 1.5 such birth to each 1,000 of population. This ratio of illegitimacy to the entire population was 70 per cent. greater in 1880 than it was in 1870. In Austria, where attendance on elementary schools is obligatory, the ratio of birth of illegitimate children is 124 to 1,000 inhabitants; Denmark, one of the countries noted for general diffusion of knowledge, shows 110 to 1,000; Sweden shows 96 to 1,000; in Germany, where school attendance is compulsory, the ratio is 88 to 1,000; in France it is 73 to 1,000; in Italy it is 66, and in England 61 to 1,000; while in Russia, which is situated in nearly the same latitude as Sweden, and where the masses are in dense ignorance, ratio is only 30 to 1,000. These statistics speak as exhortations never can the relative power which schools and society in general exert to mold the destinies of the people of a country. If society wishes to mold men as well as children, it must restore the conception of school which the Grecians had when they established courses of study that covered the attendance of the boy and man until he reached forty-five years of age, and it must enlarge the conception of school by putting more motive power and life into it.

The most that can be expected from the elementary schools is that children shall be taught to that degree of intelligence by which they may discern good and evil in subsequent years, and give to them a bias for virtue and stability of character for good.

Those who wish to pursue this investigation further will find ample materials afforded by the influence which is exerted upon men by the training which they have received in military and naval schools, and the record which they have made in civil and official life for integrity to their duties.

THE LONDON PEABODY FUND

EDUCATORS in the United States are familiar with the great work which the Peabody Fund is accomplishing to educate children in the South. But Mr. Peabody's munificence in London is not so familiarly known. The trustees of this fund made their annual report recently. Among the trustees are Lord Derby (chairman), United States Minister Lowell, and Sir Stafford Northcote. The report for 1881 shows that the net gain of the year, from rents and interest, has been £29,751 1*s*. 9*d*. The sum given and bequeathed by Mr. Peabody amounted to a total of £500,000, to which has been added money received for rent and interest, £280,448 4*s*. 9*d*., making the total fund on the 31st of December last £780,448 4*s*. 9*d*. The trustees have borrowed and are owing the Public Works Loan Commissioner £62,833 6*s*. 8*d*. The expenditure to the end of the year has been £781,040 9*s*. 7*d*. Up to the end of the year the trustees had provided for the artisan and laboring poor of London 6,160 rooms, exclusive of bathrooms, laundries, and wash-houses. These rooms comprised 2,787 separate dwellings, which were occupied by 11,459 persons. Four hundred and thirty-two new dwellings have been opened by the trustees during the past year, and for these there have been upwards of 3,000 applicants. The death-rate in the Peabody buildings for the year was 17.22 per 1,000, which is about 3.98 in a thousand below the average of all London for the same period. The average weekly earnings of the head of each family in residence at the close of the year was £1 3*s.* 7¾*d.* The average rent of each dwelling was 4*s.* 5¼*d.* per week, and of each room 2*s.* The rents in all cases include the free use of water, laundries, sculleries, and bathrooms. In order to remove a misapprehension, which they suppose is maintained in many quarters, that the benefits of the fund are enjoyed by a class for which they were not originally designed, the trustees append extracts from Mr. Peabody's letters and trust-deeds to show that he fully understood and personally sanctioned the two leading principles on which his fund has since its origin been administered: First, that the buildings shall be occupied by tenants of the working classes, paying a reasonable rent; secondly, that the income thus obtained shall be applied to the construction, from time to time, of fresh buildings similar to those already existing, so that that the operation of the fund may admit of indefinite, though gradual, extension.

THE CLÔTURE.

SOON after the *coup d' etat* of December, 1851, when parliamentary government was practically abolished in France, the *clôture* was invented to gag whatever still remained of free speech in the Corps Législatif, where public debate had been already prohibited by Napoleon. The object of the *clôture* was to prevent debate by the opposition, in order that the measures of government should not be examined, but voted for by a servile Assembly. The rule of the *clôture* was, that it should be moved for in writing, signed by five members; when the motion was put by the chair a division was to be taken instantly, unless any member claimed to speak against the *clôture*, in which one member only could speak on this motion. The vote was taken by yeas and nays, unless a ballot was demanded in writing by five members; a bare majority was enough to order the *clôture*, or previous question. This once carried, all debate on the original question must cease, and the adoption of it put to vote. By means of this rule the ministry could stop debate at any moment; oppression was the essence of the measure.

The principle of the *clôture* involves an important educational force; its purpose is to compel obedience to authority without question, examination, or remonstrance. Hence it tends to make people servile; but servility brought by tyranny against intelligent beings stirs up resistance which must prove powerful in the end. The position which England took with the

Thirteen Colonies was essentially the *clôture* carried to its worst possible extreme, — that is, she permitted no debate by colonists because she permitted no one to enter Parliament from them. The practice of the American caucus has come to be little else than a spirit of the French *clôture*, in many places,—that is, it is a form of the worst repression.

FORMS OF POLITICAL OATHS OR AFFIRMATIONS.

English representatives at foreign courts have transmitted to Parliament the forms of oaths that are required of members of the national councils. In Austria the members of the Legislative Assemblies only affirm "fidelity and obedience to the Emperor, observance of the constitutional and all other laws, and conscientious discharge of their duties." The Hungarian and Croatin Legislative Assemblies introduce no oath or affirmation. The Belgian representative says, "I swear to observe the Constitution." The Danish member of the Rigsdag swears, "I hereby promise and swear to maintain the Constitution, so help me God." Members of the French Legislative Assembly take no oath or affirmation. Members of the German Reichstag take no oath or affirmation, while members of local governments and State Parliaments take the oath of allegiance to their respective rulers, swearing to abide by the constitutions of their respective States. The oath is given in Greece and Italy. In Spain the form in the Congress and the Senate is as follows: One of the secretaries says to a new member, "Do you swear to maintain the Constitution of the Kingdom of Spain? Do you swear fidelity and obedience to the legitimate King of Spain, Don Alfonso XII.? Do you swear to properly and faithfully fulfill the charge intrusted to you by the Nation, ever considering its welfare?" The member kneels, and, placing his hands on the Gospel, says, "I do," at which response the president replies, "Then may God repay you; but if you fail, may He claim it from you." The presiding officer of each House of the United States Congress administers the oath to the members, by which they swear to support the Constitution.

MISCELLANEOUS NOTES.

Mr. F. Treves, of the London Hospital, recently addressed the National Health Society on the subject of dress. Among the points which the occasion brought out are the following, which have a practical educational value: Dress is to the body what language is to thought, and the love of dress is as true an instinct as the love of the beautiful and good. The primary objects of dress are to cover the body and maintain an equable temperature. The neck, arms, and upper part of the chest and back are often left bare, while a mass of raiment, sufficient to clothe a dozen children, is accumulated about the lower extremities. In the ordinary dress of women little regard is had for maintaining an equable temperature. The covering of the upper part of the chest is very thin, perhaps that of the dress only. The region of the corset is reasonably covered, while many layers of clothing are massed about the hips. Geographically the body may be divided into a frigid, a temperate, and a torrid zone. Tight-lacing may be considered, first, as a matter of beauty; secondly, as a matter of sense; and, thirdly, as a matter of health. If the most beautiful female outline is that of a young, normal, well-developed woman, then a narrow waist is hideous. Children have normally no waist. A mother can do nothing more fatal to health than to make her daughter wear stays "to improve her figure." The normal waist of a woman, which is oval in section, has a circumference of 28 inches to 29 inches; the "elegant" waist, which is circular in section, has a circumference of 20 inches, while the measurement of dressmakers' lay-figures varies from 21 to 24 inches. The deformed foot of the Chinese lady, the flattened heads, perforated nostrils, and distended lips of savage tribes, are less senseless freaks of fashion, for they injure but one part of the body, and that not a vital part.

AT the Psychological Section of the Medical Congress at Amsterdam, Dr. Ball gave an address on "Mental Medicine throughout the Ages." His canons for pursuing the subject of medicine are equally imperative in pedagogy. They are: Firstly, respect for the ancients. It is only by accurately estimating the difficulties of the subject that their efforts and the immense services they have rendered us are appreciated. Secondly, the cultivation of clinical observation. In every age there have been great observers who have studied mental disease, and have left imperishable pictures which will remain eternally true, whilst time has dealt justly with the different theories which have in turn disputed for preëminence. Strive to observe well; before everything be clinical observers, and thus be the legitimate successors of Esquirol and Pinel. Lastly, skepticism; by this is not meant that morbid disposition of mind which makes us receive with foolish ridicule all new ideas, and which would ultimately become more hurtful to the true interests of science than the most childish credulity. By skepticism is meant that negative virtue which consists in never accepting a fact without verifying it, an idea without examining it, and which teaches us never to yield until compelled by the weight of proof. Then, but not till then, we yield, with the conviction that we have not succumbed to the allurements of the imagination, but have submitted to truth alone. Through subjection to such discipline, we run the risk of never marching at the head of our age; but we have at least the advantage of never mourning over those hypotheses whose blossoming is so rapid and whose life is so ephemeral.

SINCE the last issue of EDUCATION three great names have been added to the list of the dead of 1882: Henry Wadsworth Longfellow, the poet, of Cambridge, Mass.; Charles Robert Darwin, the scientist, of Kent, England; and Ralph Waldo Emerson, the philosopher, of Concord, Mass. Each of these men was a prince in his own department of letters, science, and philosophy, and each has made an indelible record on the thought and history of the world. The distinguishing characteristics of Longfellow's writings were their purity, naturalness, and the true interpretation of men's higher spiritual natures and conceptions. Every line of the great poet reflected his own deep experiences and the heart-sentiments of the multitude of men and women, and his words the world will not willingly let die. Mr. Darwin has, by patient research, developed a theory whose principles seemed at variance with revelation as well as the previously well-established theories of life-development. Great hostility was awakened, and he and his disciples have been the objects of the severest criticism from the scientific and the theologic world. So far, however, have his theories and doctrines come to be recognized as credible that even the leaders in religious thought in England and America recognize in him a real helper and a great teacher in the world of scientific thought. His interment in Westminster Abbey is evidence of his estimate by the great thinkers and leaders in England. Mr. Emerson outranks Carlyle as a great thinker and writer. He was profound, but not voluminous; clearness, simplicity, and a practical outlook upon human life constitute the chief merits of his writings. He aimed to bring men to study for themselves the problems of existence, and he freed them, as he did himself, from the fetters of tradition and prejudice. He taught men to be honest with themselves, and set an example worthy of imitation. Social life, the church, philosophy, politics, and, best of all, the lives of common men of toil and trial, have been enriched and ennobled by the life and writings of this great teacher.

DURING February and March a very important educational movement was inaugurated in India. An Educational Commission was organized at Calcutta, composed of (1) the highest officers of the education department, (2) the missionary bodies, and (3) the leading natives; to these were added Mr. Barbour of the financial department, and Mr. Hunter of the supreme government. Rules of procedure for transacting business were adopted. General questions were discussed, first by a general committee, which included representatives of all the classes belonging to the Commission, to which the conclusions reached by the committee were referred for final action. Provincial questions were first referred to a committee of official, native, and missionary representatives, who were concerned directly in them. The Commission sat daily three days of the week as a Commission, and three days a week in its various and numerous committees. The problem to be considered by the Commission was no less than an examination of the system of education for India. Only 2,000,000 children are at school, while there should be at least twice that number. The deliberations revealed three important facts: (1) That the missionaries had good grounds for their complaints and for their memorials against the system of State education, as it prevails throughout a large part of India; (2) that the education department has fallen away in some provinces from the principles established for it in 1854, in that it has diverted the public funds to over-educate the few at the under-education of the many; and (3) that great divergencies exist in various provinces with regard to the working of the department and the scope which it assigns to its duties.

THE Russo-Jewish Committee of England submitted, March 1, 1882, its official report of investigations made of the treatment which Jews receive in Russia. The investigations reveal a state of society which is heart-rending in the extreme; there are persecutions in their most revolting form, — murders, robberies, arson, outraging women, riot, and bloodshed. In concluding the report the chairman of the committee, N. M. De Rothschild, says: "The sickening details here given do not by any means exhaust the dark catalogue of horrors perpetrated by the lawless rioters, and tacitly sanctioned by official abettors. The full history of these brutal persecutions will never be written, so many victims being dead, and so many of the survivors being unwilling, or not daring, to disclose the terrible truth. The issue may be put thus: The evidence adduced by the Consuls as to the outrages is for the most part negative and hearsay evidence, and cannot weigh against the positive evidence of eye-witnesses and other trustworthy sources of information. The Consuls could only seek the information from Russians on the one hand, and from Jews on the other. The Russians were the culprits, and necessarily denied their guilt; the Jews were the victims and dared not speak. In the presence of this conflicting evidence, let the public judge."

M. DONKERSLONT assigns the name Katatomy to cases of disease in which the chief symptom is powerlessness to act, arising from some derangement of the part of the brain which presides over movement. It is not so much a disease of itself as a complication of several. It is suggested whether the phenomenon of children being unable to do a specific act in the class-room, as sometimes happens, may not belong to this class of diseases. Instances occur where a child appears wholly unable to see a certain thing, as a letter in a word when looking directly at the word; or to make a given mark by the hand when the line is before the pupil. In connection with Katatomy may be mentioned Claustrophobia, or fear of closed spaces, called by the French *délire du toucher*. Persons afflicted with this disease suffer great mental anguish when they are expected to touch something which they deem impure or unclean, or believe themselves locked up alone, or fancy that they are crowded in narrow passages. Instances arise when students in physiology have suffered torture because they were obliged to witness a dissection of a cat, or see a skeleton, or handle a bone; some people can never shake hands with an undertaker except with gloves on.

POPE LEO XIII., March 2, addressing the members of the Sacred College, asserted, in uncompromising terms, that temporal power is necessary for the administration of his spiritual office. The general questions of State which are involved in these claims of the Pope are important to educators; they touch the relations which should exist between civil power and independent moral power; or stated otherwise, to what social and moral purposes should the State apply its power to compel the people to adopt this or that qualification, as a condition of citizenship? How far shall teachers be authorized by civil power to enforce certain forms of conduct from pupils? The celebrated Bradlaugh oath case is in reality a contest between the power of State on the one hand, and the moral power of man on the other. The Pope wishes civil power to sustain moral and religious propaganda, while Parliament commands moral and religious beliefs and forms to sustain the civil power. In Rome the wail arises because temporal power is wanting; in London there is wailing because the religious form is wanting.

DR. PAUL A. CHADBOURNE has accepted the presidency of the Massachusetts Agricultural College. His views of college government will meet the approval of all patriotic citizens. He says: "I can never again become connected with an institution in which trustees or patrons insist that young men should be kept to be reformed, or that they are to be tolerated in rowdyism and lawlessness. No man should enter college until he is old enough to know what he goes there for, and he should not be kept there a single day after he forgets his duty as a citizen of the Commonwealth that is educating him, or fails to profit by the advantages given him. I do not believe in tolerating or ignoring the follies or vices of young men. I have been compelled to do this to some extent in the past, in deference to custom. I will have no hand in tolerating such evils in time to come, whereever my lot may be cast. Order and quiet, sacred regard for every penny of property and all the rights of others should be required of every student of every college, especially of one belonging to the State, which has reform schools in other places."

APRIL 18, 1882, the Senate of the Royal University of Ireland proceeded to elect fellows. The statutes of the University permit the election of thirty-two men to fellowships, which continue for seven years, having an annual salary of $2000 each. The conditions which are imposed upon fellows are that they shall give their services in teaching students of the university in any educational institution approved by the Senate. The fellows constitute a board of examiners to conduct without fees university examinations, although necessary expenses are met for them. The subjects upon which candidates for fellowships are examined are: Classics; English language and literature, and general modern history, and Irish history and antiquities; modern languages; mental and moral philosophy; mathematics; natural philosophy; chemistry; natural sciences, medicine, surgery, and physiology.

EXPERIMENTS in Paris and in London have demonstrated the practicability of propelling street-cars by electricity. A number of Faure accumulators were ranged under the car; the proper machinery was adjusted to drive the wheels. The accumulators weighed a ton and a half, and were charged by a stationary engine, with a force estimated at twenty-five horse power, which would run the car over half a day. The car made about eight miles an hour when it was filled with passengers. The motion can be reversed by the pilot. The chief objection appeared to be the noise of the machinery, which is below the floor of the car. Improvements are expected to remedy this defect. The promoters are sanguine in their belief that omnibuses and cabs can be worked by electricity at no distant day.

CONGRESS passed a bill which prohibited the immigration of Chinese workmen for twenty years. In this act the United States retrograded in principles of patriotism, for to entertain a moment the theory that 100,000 industrious Chinese laborers will contaminate and defile 50,000,000 population is absurd. Dennis Kearney visited the East a year or two ago, saying that the "Chinese must go"; everybody laughed at his predictions, but in 1882 Congress comes to his platform, and disgraces the American people in the eyes of the world, besides humiliating them in their own estimation. But, to the honor of the nation, President Arthur vetoed the bill.

CONGRESS and President Arthur have enacted an anti-Mormon law which takes the administration of civil affairs of Utah out of the hands of polygamists, and puts control in the power of monogamists. This act wlll serve to make effective the public opinion of the United States against this stain on the Nation's honor. This law will be the schoolmaster that will teach the youth of Utah the difference between true civilization and that of heathendom. It demonstrates, also, that the influence of teachers is a very questionable and insignificant element of power in a community, unless the civil authority be first arrayed against the evils which they would eradicate.

A REMARKABLE phenomenon occurred recently off Saybrook, with Bartlett's Reef lightship, off the coast of Connecticut. The vessel was lying still on a perfectly smooth sea, when suddenly an area of about a quarter of an acre was lifted out of the depths to a height of twenty-five feet, churned into a foam, and in a second threw the lightship on her beam-ends, almost swamping her. The phenomenon subsided as quickly as it appeared, but the billowy roll continued for a long time afterward. Capt. Edwards, who was on board at the time, states that he saw a similar occurrence about the same place nearly sixteen years ago.

LONGFELLOW died March 24. America's most illustrious poet has gone from earth. Longfellow lives deep in the hearts of enlightened people throughout the world; his refined language will continue to mellow the asperity of the conflicts of life in ages yet to come, to all who read his immortal verse, for beautiful words and harmonious numbers soften the heart of those who become familiar with them. The poet will be remembered by no persons with greater tenderness than by teachers.

THE British Government of India are instituting measures of great educational importance to the masses of the people. These measures are to decentralize governing power by handing more of it over to local boards for self-government. The effect of these acts will be to educate the people in the practice of government, and to reduce the sum total of State expenses, leaving larger amounts to be expended for elementary schools.

THE London Society for the Extension of University Teaching has been in existence a few years, and is doing a good work. It occupied eighteen centers, where lectures were delivered during the past year, against fourteen the year before. The Council of Managers report through their president, Mr. Goschen, M.P., that the teaching itself can be made still more effective. There are sixty-eight subscribing members of the Society; during the past year the expenses were nearly $2,500.

JANUARY 26, 1839, the State of Texas, set apart 222,400 acres of land to aid in establishing and endowing the University of Texas. Governor Roberts has recommended, recently, to the Legislature that 3,000,000 acres more be appropriated to assist to complete the original plans which were adopted by the management for the State institution.

PROFESSOR S. H. WHITE died in March at his home in Peoria, Illinois. Professor White was an educator of excellent type; he was a warm friend of youth; his energy and wisdom were important elements that contributed to the success of the National Educational Association. He was a genial gentleman, impressing all whom he met with the stability and dignity of his character.

MARCH was noted this year on the Atlantic for the immense fields of ice which interfered with the passage of steamers. The Circassian had to steer south two days to get clear of icebergs, and the St. Germain was held fast seventeen hours by the same pack. This occurred near latitude 45° N., longitude 47° W.

AN assassin fired a revolver at Queen Victoria, March 2, but without harm to her. All governments united to congratulate Her Majesty upon her escape. People of the United States will never forget the manifestations of deep sympathy that the noble Queen of England showed to Mrs. Garfield and the American people at the death of the President.

FOREIGN.

GREAT BRITAIN. — *England.* — In the twelve years since the passage of Mr. Foster's Education Act, England has freed herself from the charge of not providing school facilities for the masses of her youth. It is true that the incessant changes in the distribution of the population, by which the towns are ever gaining at the expense of the country districts, will always render further school-building necessary. Practically, however, the school accommodations are so complete that, if children grow up uneducated, it will not be from neglect in this particular. The irregular attendance of children upon the schools is, at present, the source of greatest concern to the department. Compulsion has been applied with indifferent results in many of the large towns, and is almost a failure in the agricultural parishes. In some places the magistrates have been blamed for not enforcing the provisions of the law with sufficient vigor; the law itself has been shown to need amendment; and, in some instances, the very authorities charged with the duty of seeing the act obeyed have neglected or evaded their obligation. The incapacity or unwillingness of local authorities to administer the compulsory law has led to the suggestion that the department should take the matter more fully under its own control. The education code has been the subject of constant and sharp criticism ever since its adoption. The first revised code was characterized by Mr. Matthew Arnold "as the clever device of a clever man, which leads to a minimum of teaching." In a recent meeting of the College of Preceptors, Mr. R. Wormell, D.Sc., M.A., said of the same code that "it substituted for education a purely mechanical drill. The higher moral and intellectual training of his scholars was not recognized by the code as part of the teacher's duty. The regulations of this code took no account of the differences in the habits of people living in different localities, of the migrations of certain classes, of local influences, of the occupations of the people, in agricultural districts, or in the industrial centers." "The defects of Mr. Lowe's code were so glaring, and, in many respects, it was so opposed to the principles on which the department had acted for twenty years that the Committee of Council itself showed some sensitiveness and uneasiness respecting its defects. It tried to remedy them by issuing instructions to inspectors that were in harmony, it is true, with the traditions of the department, but were entirely in opposition to the spirit of the code." In short, the tendency of the code, as represented by its opponents, is toward that which is formal, mechanical, capable of exact measurement by the standards; whereas men, who laid the foundation of elementary and middle-class education, gave the department an impetus toward that which is philosophic, and which promotes general intelligence. The disposition which has been manifested, from time to time, to change the composition of the School Boards, and which has led to the somewhat misleading statement on this side of the

Atlantic; that school-inspection by University men has failed in England, is another development of the same opposition between philosophic and experimental methods of procedure. It seems to be a short-sighted policy that would deprive so important a public interest as that of education of the service of either order of minds. The bitterness of a similar controversy appears to have been passed in the United States, and there is reason to believe we shall soon find a means of combining both influences in one school system. The new revised code, which is largely Mr. Mundella's work, is regarded, in some quarters, as a great improvement upon Mr. Lowe's. It is more in conformity with rational principles and improved methods of instruction. The "London Times" says: "The new code has the merit of being more simple, more distinct, and more carefully thought ought out than its predecessors have been." One of the most important changes is that which makes the average attendance of the year the basis of the grant to a school. A large proportion of the grant is to be assigned to special merit, so that intelligent teaching and proper classification will be encouraged. The scheme of science-teaching is made continuous, and the course in arithmetic is improved. On the other hand, it is urged that the new code leaves the teacher too much at the mercy of inspectors, who are, oftentimes, quite incompetent for the duties of their office. "The School Master," in commenting upon this feature, suggests that the remedy will be found in "combination on the part of all whose interests are affected Against the united teachers of any district, aided or not by friendly managers, any inspector can soon be made powerless for evil." It is proposed to throw open the masterships in elementary schools to graduates of universities, whereas, at present, the teaching in elementary schools is almost a monopoly of the boys and girls who have been educated therein. In this connection it is interesting to note that the Senate of the University of London has decided upon taking steps for instituting an examination for teachers. The new subject is to bear the title of "The Art, Theory, and History of Teaching." The examination will consist of the four following divisions: 1. Mental and Moral Science in their relation to the work of Teaching. 2. Method in Teaching and School Management. 3. History of Education. 4. Practical Skill in Teaching. The names of passed candidates will be arranged in alphabetical order, and a "Teacher's Diploma" will be awarded each. For many years the College of Preceptors has urged upon the Universities the duty of adding this important subject to their courses of instruction and examination. The two Scotch universities of Edinburgh and St. Andrews were the first to respond, Cambridge came next, and now London has followed. "The Educational Times," in an editorial, says: "There is still one thing wanting, — it is a Degree in Education. The profession will never take its right stand before the public until it is provided with a Degree like that of Medicine, Law, Divinity, and Science." The issue of the new code has been followed by the annual statistical returns of the Education Department. The educational results, as measured by the percentage of passes in the elementary subjects, and the rate of the grant per head, surpass those reported for 1880.

Industrial and Technical Education. — Measures are being taken throughout the Kingdom for the promotion of industrial and technical education. The London School Board has organized cookery classes in eighteen elementary schools. The total number of girls receiving instruction in cookery in the Board schools for the half-year ending September, 1881, was 4,250. The work has grown to such proportions that the Board has consigned it to a special superintendent. The new code contains a schedule of needlework for all the standards. The branch is made obligatory in the girls' departments, and a grant is allowed where the same instruction is given to boys.

The second annual report of the City and Guilds of London Institute for the advancement of technical education shows that the work of the Institute, for the two years of its existence, has been very effective. The schools in London belonging to the Institute report increasing attendance, and it appears that a system of technical schools will soon be spread over the entire county. During the past session 551 tickets of admission to the evening classes of technical physics have been sold. In 1881, 1,563 candidates were examined in 115 counties. Of this number 895 passed, — 66 in two subjects. The numbers are nearly double those reported for 1880. The examinations give evidence of increased stringency, both for students and those who aim at being technical teachers. The Institutes' certificates are intended to be regarded as diplomas of efficiency, and are awarded only to those who give evidence of possessing a practical as well as a theoretical knowledge of the subjects embraced in the examinations. The City Guilds have been specially urged by the Prince of Wales to contribute liberally to the Institute. Their national pride is appealed to by the statement that, as compared with the funds at the disposal of the Paris Conservatoire, those of the Institnte are a mere pittance. Simultaneous with the proposed establishment of a central institution at South Kensington, by the City and Guilds of London, for the promotion of technical education, is the projection of a Technical University at Dublin. Funds for the endowment of the university are more than supplied by the enormous surplus arising from the disendowment of the Irish Church. The plan of the association contemplates in its entirety: (1) Primary Industrial Schools; (2) Technical Schools, — *i. e.*, practically working schools, in which earning and learning shall go hand in hand; (3) Normal Industrial and Technical Colleges for the training of teachers for the Primary Industrial and Technical Schools; (4) A Technical University in Dublin.

SCOTLAND. — Professor Laurie's inaugural lecture before the education class at the University of Edinburgh was upon "The Educational Wants of Scotland." With reference to the reform of universities he said: "The ideas which governed all attempts at the reform of universities were (1) that they should cease to be secondary schools, — work of secondary schools being done elsewhere,—for this, entrance examinations were indispensable; (2) that they should be great schools for the advancement of science and the fostering of scientific germs; (3) that they should complete their relation to the profession of teaching. The next educational want of Scotland, that pressed for attention, was that of high schools." Upon the question of school inspection, he said that the great object ought to be to make the intelligence, the tone, the morality of schools form the basis of inspectional judgment; other things to be regarded as subsidiary. He argued that school inspectors should have training for their work, and that some protection should be devised for the tenure of teachers.

FRANCE. — No measures occasion more animated debate in the French Parliament than education bills, and as the discussions are reported with a precision and spirit peculiar to French journalism, the subject is invested with the fascination that attaches to the higher problems of life. The Primary Education Bill has at length been adopted by the Senate as sent back from the Chamber of Deputies. Each clause was prolific in amendments, leading to prolonged discussion: the first clause was passed March 13; the eighteenth and last was not reached until March 23. The principal provisions of the bill are as follows: primary instruction is made obligatory for all children between six and thirteen years of age, but it may be given in public or private schools, or at home. Industrial training appropriate to local wants and resources is made obligatory in the advanced primary schools, but the proposal to provide for girls being taught cooking was not pressed. Religious instruction is forbidden in the schools, but may be given to children whose parents desire it, by ministers of different denominations, in other than school-buildings, on Sundays and Thursdays. The latter has been made a holiday to give larger opportunity for the religious instruction which so many families desire. Clause 14 of the bill imposes penalties on parents, giving their children no education. Teachers must be French citizens, must have secured certificates of capacity, and must not belong to any religious order, institute, etc., or to the clerical profession. The minimum salary of primary school-teachers is 1,000 francs; the maximum, 2,200 francs; the salaries are at the charge of the State. Instruction is gratuitous in infant schools, primary schools proper, and advanced primary schools, and also in the normal schools. The phrase, "moral and civic instruction," embodied in the first clause of the new bill, caused prolonged discussion, but was finally retained. It is purposed to teach an outline of the Constitution in such a manner as to prepare boys for electoral duties. The *salles d'asile* (infant schools) are especially for children of the working people whose occupations call them away from home during the day. Children from two to seven years of age are admitted. The schools are in charge of women over twenty-one years of age, who must be properly certificated. If the schools are annexed to normal schools the teachers must be twenty-five years of age, and have passed five years in public or free schools. Assistants must be eighteen years of age. The general inspectors, who belong to the committees in regard to primary instruction, must be at least thirty-five years of age, must have had five years' service in the interest of education, and must have gained certain certificates. A departmental inspector must be thirty years of age, have had three years' service in public education, and have received his certificate. The instruction and training in these schools is directly preparatory to the primary course. The programme includes manual exercises, gymnastic movements, object-lessons, elementary drawing, moral teaching, elements of natural-history, and geography,

Primary Schools.—The French Parliament has manifested the deepest interest in the development and conduct of the primary schools. In preparation for the budget of 1883, unusual efforts have been made to secure complete and accurate returns from all the schools of this grade. Secondary instruction in France is thoroughly organized. It comprehends an elementary course of three years, a middle course of three years, and a higher course of two years. An examination is required for admission to each class. The degree of "Bachelor of Special Secondary Instruction," has been instituted. This is intended to replace the diploma, at close of studies specified by law of 1865. The limit of age for this degree is the same as for B. S. Manual labor has been introduced in the *écoles communales*, at Paris, so that, on leaving the schools, a short apprenticeship will make good workmen of the boys. In the girls' school of "*Rue Violet*" domestic economy, sewing, cooking, cleansing stuffs and furniture have been introduced with such excellent results that the municipal authorities intend to introduce similar branches in other schools for girls.

BELGIUM. — *Education Budget for* 1882. — The budget of the ministry of public instruction for 1882 amounts to 20,400,913 francs,—an increase of 1,601,541 francs over the previous year. This increase is due to the creation of a large number of secondary schools in various parts of the country. An article adopted by the Chamber of Representatives, at the session of 1879–80, provides that there shall be three Royal Athenæums in Hainaut, and two, at least, in each of the other provinces. The course of study in these covers seven years; viz., Preparatory course, two years; Classical, five years; Professional, five years; a sixth year in the classics is permitted. Applicants for admission to the lowest class must be at least eleven years of age, and must pass the entrance-examination. The number of secondary or middle-class schools, as they are called, for boys, under State patronage shall be at least one hundred; for girls, at least fifty. Normal, pedagogical instruction has been instituted to instruct those desiring to hold the position of director or regent of the middle-class schools for girls. These middle-class schools have a three years course; children may be admitted to the preparatory section at six years of age, and to the third class at eleven years. By act of June 8, 1881, primary instruction was made free in the provinces of Waton and Zuidschok.

University of Ghent.—By official act of May 16, 1881, the Normal Scientific School annexed to the University of Ghent is to include three sections: viz., for mathematics, natural sciences, and commercial sciences. The first two courses require three years; the last, two years. Applicants for admission must be between eighteen and twenty-three years of age, and must pass the entrance-examination.

GERMANY AND PRUSSIA.—The Prussian Government has presented to the Herrenhaus a project modifying the law of March, 27, 1872, concerning pensions. The law applies to teachers the same as to other officers, whether of the civil or judicial order. Under the present law a public officer may retire, after ten years of service, with a pension equal to one-fourth of his salary. Each year's additional service augments the pension by one-eightieth of the salary until the maximum is reached, which equals three-fourths of the salary. This requires fifty years' service. Under the proposed law a pension equal to one-quarter of the salary is allowed at the end of ten years' service, but each subsequent year increases the allowance by one-sixtieth of the salary, so that the maximum is reached at the end of forty years' service. The difficulty in the way of arriving at an intelligent understanding of education in Prussia will be understood when it is considered that the latest statistics on education in the Empire were published in 1871.

SAXONY.—From the report of the primary public schools in Saxony for 1880 it appears that there were engaged in the service 205 directors, 4,325 masters, and 84 mistresses, definitely appointed; and 1,124 masters, and 59 mistresses, provisionally appointed. To these must be added 72 special masters, and 1,535 mistresses of needle-work. Private schools employed 244 masters. and 233 mistresses; to which number should be added 145 teachers belonging to the public schools, but also giving lessons in private schools, and 58 mistresses of needle-work; 30 preceptors and 94 governesses were employed in families. The total expense for the public primary schools was 14,300,274 marks; of this sum 206,145 marks went to institutions for deaf-mutes. There were 504 masters and mistresses on the pension-roll, whose pensions formed a total of 578,463 marks.

WURTEMBERG.—During the winter of 1880–81, Wurtemberg maintained 536 evening schools, and 150 special schools of a different order. The former were attended by 12,385 scholars, the latter by 5,428. The expenses of the evening schools amounted to 52,000 marks. The proposition made to the communes, the previous year, to continue the special instruction during the summer, by substituting Sabbath schools for evening schools, was generally adopted.

SCIENCE.

STATISTICS of the sun from Professor Young's recent work: Mean distance from the earth, 92,885,000 miles,—149,480,000 kilometers; linear diameter, 866,400 miles,—1,394,300 kilometers; ratio of the diameter to that of the earth, 109.3; volume, 1,305,000; mass, 330,000; density, 0.253; density compared with water, 1.406; force of gravity, 27.6; distance a body would fall in one second, 444.4 feet,—135.5 meters; mean time of rotation, 25.38 days; linear velocity of rotation at the equator, 2,261 miles per second,—2,028 kilometers. Intensity of the sunlight at the surface of the sun, 190,000 times that of a candle-flame; 5,300 times that of metal in a Bessemer converter; 146 times that of a calcium light; 3.4 times that of an electric arc.

PROFESSOR BEAL, formerly a student of Agassiz, in a recent lecture before the Michigan Agricultural College, gives a description of the old method of teaching the science of botany that reads much like a burlesque, but is only too true, and then sketches the new way in a most attractive style. In the latter, "we study objects before books; a few short talks are given; the pupil is directed and set to thinking, investigating, and experimenting for himself. . . . Before the first lesson each pupil is furnished with some specimen for study. . . . For the first recitation, each is to tell what he has discovered. . . . Books are not used, for no books contain a quarter of what the pupil may see for himself."—*Science Monthly.*

PROFESSOR DAFOUR calls attention to the deformation of images on large sheets of still water, through the roundness of the earth. Instead of equal, the image is compressed in the vertical direction, showing distinctly the rotundity of the earth. One may see the same in images of distant ships, the eye being near the water's surface.

M. L'ABBE MOIGNO writes, "Le jeune animal sauve sa vie, l' enfant au berceau meurt sans sa mère."—*Les Mondes.* He forgets that the young of the higher apes are as helpless as human children.

THE profits of the Paris Electric Exhibition amounted to some 400,000 francs. This sum must be employed for a scientific purpose, and it is now proposed to found a laboratory for electrical research.

IT has been shown by the immersion of photographic plates that the chemical rays of light penetrate water to a depth of at least ninety meters.

ENGLAND recently sent a Royal Commission on Technical Instruction to examine the principal centers of industry in France.

J. H. Raymond

[illegible] & Hulbert, N.Y.

EDUCATION.

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MORAL INSTRUCTION IN THE PENITENTIARY.

BY CHARLES F. THWING, CAMBRIDGE, MASS.

The separation of the Christian from the criminal class of the community is most marked. Few are the prison convicts who have been trained under the influence of the church, and fewer still are those who were born and bred in Christian families. Of the four hundred and eighty-nine convicts confined, according to late reports, in the Iowa State prison, three hundred and seventy-five have received no religious education, and fifty-three, of the one hundred and fourteen who have received any, were trained in the Catholic faith. Of the five hundred and fifty-six inmates of the penitentiary of Eastern Pennsylvania, three hundred and eleven have never attended Sabbath-school, and of the two hundred and forty-five who have been in attendance, many cannot repeat the Lord's Prayer, or tell where it may be found. Only seven of the four hundred and eight inmates of the Michigan prison have been regular attendants at Sabbath-school, only fifty-four irregular, and three hundred and eighty-four, over eighty-four per cent., have never attended at all. Twenty-two have been regular worshippers at church, one hundred and sixty-one irregular, and two hundred and twenty-two, over fifty-four per cent., have *never* been present at a church-service. In the prison of the State of Illinois are fifteen hundred and forty-seven convicts. Five hundred and twenty-two have a religious belief, three hundred being Catholics. But a thousand and twenty-five possess no religious convictions whatever.

From these statistics it becomes evident that Christianity has exerted a very slight degree of direct influence upon the lives of those who are criminals of the State prison. The church-service has not attracted them. The mission Sunday-school has failed to gather them into its classes. The training of home has usually been, if not irreligious, at least unmoral, even if not immoral. That so small a proportion of those who have been trained under Christian influences have fallen into crime is a crown of glory to Christianity; and a crown to which public attention ought at present to be directed. But the fact that at least one-half of the convicts in the penitentiaries of the United States have never received any religious education proves how utterly useless and void are many of the efforts of the church for the education and evangelization of the criminal classes of the city and country.

It is, therefore, only after their entrance to the prison that many malefactors receive their first religious instruction. The moral and Christian atmosphere of the penitentiary which, so far as not a few of the officers are concerned, surround the prisoners is very pervasive. Nearly every one of the forty-three penitentiaries in the United States has its chaplain, whose only duty is to care for, in the most comprehensive sense, the religious and moral welfare of the prisoners. He is a Protestant usually, without positively sectarian associations, elected by the overseers of the prison or appointed by the governor of the State, and is paid a regular salary for his services. His duties relate chiefly to the night-school, the library, the Sunday services of preaching and of the Sabbath-school, and also to personal conversation with the convicts upon religious topics.

About fifteen per cent. of the criminals received at the State prisons can neither read nor write. (In many States the rate is larger,—in very few smaller.) Such are, upon their entrance, placed in the prison school if one is established. According to late data the prisons of thirteen States give regular instruction to their inmates: Massachusetts, New Hampshire, Rhode Island, New York, Pennsylvania, Illinois, Indiana, Kentucky, Wisconsin, Iowa, Kansas, California, and Oregon. The course of study is elementary, embracing reading, writing, spelling, arithmetic, with occasionally a brief study of the history or constitution of the United States. Six grades or classes are usually organized, each of which meets in the prison school-room two hours of a single evening of the week. The attendance of the illiterate is compulsory, but the chaplain of the Kansas penitentiary writes that "the majority appreciate the privilege and attend cheerfully." The intellectual and moral results of the work of the school are very marked. "The men generally manifest an eagerness to learn," says the chaplain of the Iowa prison, "and a degree of diligence and patience in applying themselves which is very satisfactory, and in some cases very surprising." The teacher, too, in the penitentiary of Western Pennsylvania writes with "overwhelming conviction of the value of a first-class, well-furnished school in every reformatory and prison." There are, however, over a score of prisons in the country that make no provision for the regular instruction of their inmates. But every argument that sustains the public school system of the State applies with equal, if not with greater, force to the establishment of schools in every prison.

A second means of moral and religious education with which prisons are furnished is comprised in their libraries and newspapers. To the prisoner alone at night in his cell a book is not merely an entertaining companion: it may prove to be the agent of his reformation or regeneration. "It throws a charm around many a weary hour," says a chaplain, "which otherwise would be burdened with morbid thought and feeling which engender evil restlessness." At the present time there are thirty-five prison libraries in the United States, containing on an average fifteen hundred volumes each. Among the largest and best managed are those of the two penitentiaries of Pennsylvania. That of the Eastern district contains over 7,000 volumes, 658 of which are classed as "religious," 1,476 as "instructive," and 4,130 as "entertaining." It also has a thousand volumes in French, German, and other foreign languages. The degree to which these works are read is indicated in the fact that each prisoner received, on an average, seventy volumes during one year, or nearly six every month. The library of the penitentiary of Western Pennsylvania is somewhat smaller, but in respect to management and efficiency is justly renowned. Of its 4,200 volumes there were in the last year over 35,000 deliverances at the cells. Their character was as follows:

History,	2,668	Science,	1,383
Biography,	3,068	Poetry,	748
Miscellany,	5,005	Travels,	2,677
Novels,	12,920	Magazines,	3,596
Morals,	1,466	German,	1,542

Seven hundred and fifty newspapers were also distributed each week in the corridors of the prison,—the result of either gift or of the subscription of the individual convicts. Four thousand are also annually given by the editors of the religious weeklies of Pittsburgh. But few prisons, however, are so well supplied with books and papers as those of Pennsylvania, yet the Illinois penitentiary has 6,000 volumes, those of Iowa 1,500 and 400 each, the Kansas prison 2,000, with 125 weekly papers; but several prisons have no libraries worthy of the name.

The beneficial effect of the reading of books and newspapers on the mental and moral habits of prisoners is, so far as I can discover, recognized by all the prison officers of the country. A chaplain has lately remarked, that "to make a prisoner's mind a blank cannot contribute to his permanent reformation. If the daily journal is perused with profit within the sacred precincts of a well-regulated family circle, the same results may accrue in some measure to the prisoner in his loneliness. . . . . . When a man will relinquish the use of tobacco in order to get a weekly paper there are many sedate people who will say, here is real reformation."

The only objection that can be urged against allowing convicts these library privileges is that of luxury and leniency. Spending an evening in the reading of Scott or Macaulay is not punishment. But the objection overlooks the chief aim of imprisonment, the reformation of the prisoner. And a more effective reformer than parts of Waverly and of the great Whig historian's England, for many minds, it would be difficult to find. Ignorance and "dime novels" lead many into crime. Intelligence and novels of high character may lead many into penitence and reformation.

Although only about one half of the State penitentiaries contain a secular school and a library, yet every one, so far as I am aware, offers religious services to its inmates on the Sabbath. These services usually embrace either one or two sermons, with accompanying devotional exercises and a Sabbath-school. To the preaching service attendance is commonly compulsory. The sermon seldom contains sectarian elements, and its aim is to be Christian in the broadest sense. "It is my purpose," writes the chaplain of the Connecticut prison, "not to labor to convert the prisoner to any particular creed, but to insist on the regeneration of the heart through the Holy Spirit as the basis of all true and lasting reformation." "I have so wholly ignored," writes Chaplain Williams of the Iowa penitentiary, "the doctrinal non-essentials with regard to which evangelical Christians differ, that most of the convicts are without any knowledge or thought as to the denomination to which their chaplain personally belongs." These remarks are in general true of all prisons. But in those prisons in which a considerable proportion of the inmates are Catholics, the service of a Sabbath is occasionally conducted by the priest of the town in which the prison is located. The Sabbath-school does not differ in essential respects from any Sabbath-school. The "International Series of Lessons" is followed; and teachers for the classes are provided by the churches of the town.

To his duties as a preacher and superintendent of the Sabbath-school, the chaplain adds that of pastor of the prisoners. He is the moral and religious counsellor of the convicts. "Visiting from cell to cell, giving words of comfort to the broken in heart, . . . encouraging those who are trying to be pious, and also exhorting the ungodly to give up their sinful ways," compose his duties of an evening.

The result of these various moral and Christian influences upon the character of the prisoners is most potent. In regard to susceptibility to religious impressions, those inside of prison walls differ as essentially as those without. Though, therefore, the hearts of some convicts are adamant, the natures of others are as tender as a child's to all ennobling influences. "Many are earnest seekers of salvation from sin," writes Chaplain Briscoe of his fifteen hundred prisoners "and not a few have truly learned to love the Saviour of our ruined race." Among the residents of the Minnesota prison a "prayer-hour" is organized, comprising eighteen members; and "we have quite a number among us," says the chaplain, "who give evidence of the development of Christian character, and express an abiding determination to return to a life of virtue and honor." The convicts of the Tennessee penitentiary, also, have formed a "Christian association," numbering seventy-five. A prayer-meeting is held each Sunday evening, led by one of the members; and it is said that the "remarks and prayers often evince no ordinary degree of Christian intelligence." So, therefore, to at least a few prisoners, the penitentiary is, as the name indicates, a place of penitence.

The question still remains for consideration, of the methods by which the moral and religious influences of the penitentiary may be advanced. It is evident that the various methods which are at present in operation should be continued; and that prisons not possessing schools, libraries, and efficient chaplains should be at once supplied with these agencies of reformation. But one or two additional methods may be suggested, the adoption of which would greatly ennoble the moral and Christian condition of prisoners.

First: The selection of the warden and his subordinates should be determined not merely by their executive and business abilities, but also by reason of the elevation of their *character*. Officers appointed on moral or religious grounds will regard their position not as that of a mere *keeper*, but as one of instruction and friendship, whose primary purpose is to free the criminal from slavery to wrong.

Second: The separation of the hardened criminals from the novices in crime should be made an invariable practice. The boy of fifteen, confined for larceny, should not be permitted to associate with the professional burglar. One-third of the prisoners in the Eastern Pennsylvania penitentiary declare that evil association was the cause of their crime. In the prison the influence of association is still potent. Those, therefore, who are confirmed in their vices and crimes should be kept entirely apart from those who have just entered upon evil courses. In those States having two or more prisons it would be well to sentence criminals on this principle: allotting the more obdurate to one, and those of whose reformation there is more promise to the other, prison.

HIGHER EDUCATION OF WOMAN IN CAMBRIDGE, ENG.

BY SARAH K. BOLTON.

FORMERLY people went to Cambridge to look with reverence upon the beautiful buildings where Bacon and Milton gained inspiration, and where Newton, Pitt, Byron, and Macaulay walked in ivy-covered courts and under the shade of majestic limes. Now they go for an additional reason: to see what one of the grandest institutions of the world is doing for the higher education of woman.

This is a comparatively new matter. True, America has built three colleges for women, — Vassar, Wellesley, and Smith, — and of its more than 300 colleges, over 170 admit both sexes on equal terms. True, Maria Bassi so distinguished herself in mathematics and classics as to become a professor in the University of Bologna. Elizabeth Carter, of England, was a thorough Greek, Latin, and Hebrew scholar, besides understanding Italian, Spanish, German, French, Portuguese, and Arabic. The great Johnson said, speaking of a celebrated scholar, that "he understood Greek better than any one he had ever known except Mrs. Carter." Her brother wrote to her that he had translated one of the odes of Horace so well that it was supposed to be her work. Her translation of Epictetus won her fame and fortune. Caroline Herschel announced the discovery of eight comets, five of which were unquestionably first seen by her.

Lady Jane Grey wrote and spoke, with the greatest facility and correctness, Latin, Greek, Italian, and French, and was also versed in Hebrew, Chaldee, and Arabic. Queen Elizabeth spoke Latin easily, and was a fine Greek scholar. Dora D'Istria, it is stated, speaks sixteen languages, and is one of the most learned women of the age. And yet the world has been wont to argue as did a gentleman at Berlin last summer, who, when asked if the University would probably ever admit women, replied, "No, madam. If that should happen, every student would leave immediately. Besides, how can a woman need Greek or geometry in taking care of a house and a baby?" This is what Sir Alexander Grant, principal of Edinburgh University, well calls the "great button and slipper argument," where, "if a woman were once permitted to know Greek plays or astronomy, or, in short, to nibble at any side of the apple of knowledge, there would be an end to her sewing on buttons or working slippers. The conclusion was indeed terrific."

When the mother of King Henry VII. founded Christ's College, and St. Johns at Cambridge; Margaret of Anjou, wife of Henry VI., Queens; Mary, wife of the Earl of Pembroke, Pembroke; and Elizabeth, sister of the Earl of Gloucester, Clare College; it probably never occurred to them that women wielding an important influence, would use it more nobly if educated than if ignorant.

In the last fifteen or twenty years, woman's education, with consequent opportunities for labor in industrial and professional life, has been one of the living questions. In England the matter became prominent in the general movement for a better education for the whole people. Twelve years ago the reports of a royal commission, appointed to inquire into general education, showed the condition of girls' schools to be lamentable. A large number of the teachers were unfitted for their work through ignorance. Girls were "finished" at fifteen or sixteen, with a smattering of French, music, water-colors, and worsted-work. Thackeray said, "When I see two kind, innocent, fresh-cheeked young women go to the piano and sit down opposite to it upon two chairs and go through a set of double-barreled variations upon this or that tune by Herr or Kalkbrenner, far from receiving any satisfaction at the noise made by the performance, my too susceptible heart is bleeding for the performers. What hours and weeks, nay, preparatory years, of study has that jingle cost!"

"Lady-like manners and deportment are far more important than learning," said one of the governesses. In the report made by J. G. Fitch, Esq., Her Majesty's inspector of schools, and one of the governing body at Girton College,—than whom woman's higher education has had no more efficient and devoted advocate,—after speaking of the indifference of parents to the mental cultivation of their daughters, he says: "They will not recognize the plain facts of life,—that women, who have more leisure than men, have it in their power to make, even unconsciously, the noblest use of any culture they possess; and that every sensible man who now marries with a reasonable prospect of happiness, would have a still better prospect of it, if his wife could share his highest intellectual pursuits. . . . The true measure of a woman's right to knowledge is her capacity for receiving it, and not any theories of ours as to what she is fit for, or what she is likely to make of it."

Sometime previously, memorials had been sent by leading men and women to the Universities at Cambridge and Oxford, asking that the "local examinations," which had been already established as a test of and stimulus for scholarship, might be opened to girls.

This was granted to girls not over eighteen, though, says Rev. J. Llewelyn Davies, "with a good deal of trepidation in many minds as to what might happen. It was feared that they might be made ill, or that the domestic bloom would be rubbed off their minds."

Another memorial was sent in 1868, asking that young women *over* eighteen be admitted to examinations, which was granted also. So persevering is the sex that a half-way measure is not long retained. Higher education necessitated higher instruction. It was felt that, as a guarantee of a solid education, the examinations and course of study for women must be identical with those of men. Therefore, what is now Girton College was begun at Hitchen in 1869 with six students; Miss Emily Davies, one of the most devoted and successful workers for higher education, being at its head. At the end of the year, five young ladies passed the "previous examination," euphoniously called the "little go" in the classic language of college-life, this being the first University examination taken after the student has been in college a year.

In 1873 a three-story, red brick building was erected in the French chateau style, costing over $100,000, two miles from Cambridge, and the college at Hitchen transferred to the new apartments. Miss Bernard, the mistress, gave cordial welcome to my friend and myself on our visit, showing us over the tasteful rooms, painted in terra-cotta red or blue green, and dainty with embroideries in sunflowers and daisies, or prettily arranged peacock-feathers. Each of the fifty-six students has two rooms. There are also in the building eight lecture-rooms, a dining-hall with long tables, and a prayer-room, with laboratory and gymnasium adjoining. The rooms are without gas, lamps or candles being used, — the latter usually preferred. The outlook from the broad windows upon the velvet lawn and cricket grounds is restful and attractive. Mary Somerville's mathematical library, with a bust of the sweet-faced, gifted woman, is an inspiration. One room has many interesting Roman relics, dug up from the adjacent grounds, which must have been an old cemetery. A fine stone lion was probably on one of the tombs.

The students are rarely received before the age of eighteen, and must pass an entrance examination in arithmetic, grammar, physical and political geography, English history, composition, Scripture history, unless objection is made, and in two of the following subjects, one being a language: Latin (easy translation into English or *vice versa*); Greek, the same; French, German, algebra, three books of Euclid, trigonometry, and conic sections. Admission to Wellesley and Smith calls for four or five books in Anabasis and Homer, and four, six, and seven books in Cæsar, Virgil, and Cicero respectively.

The course requires about three years, half of which time, in terms of about eight weeks each, is spent at the college. The charge for board, lodging, and instruction is about $500 yearly. The teaching is given by lectures, with, of course, no system of marking at recitations, and yet students often ask as well as answer questions. After prayers, breakfast is served at quarter-past 8, lunch from 12 to 3, and dinner at 6, with tea and bread and butter in the rooms at 5 and 9 in the evening. The college gates are closed at 6 in winter and at dusk in summer. Students are required to be present three times a day at marking, and are not at liberty to pay visits to each other's rooms without permission.

These rules are, perhaps, not more stringent than those in the men's colleges, where, in some, the students are subjected to a slight fine if out after ten at night; are "gated," — that is, not allowed to go outside the gates if they are disobedient, — and are looked after tenderly at night by proctors, who are always followed by two tall men, in voluminous gowns with gilt buttons, called by the respectful name of "bulldogs." The central idea of an English University is that of a family relation between students and tutors rather than the freedom of the French or German systems.

Girton has several scholarships. The number of students who have been in residence since its commencement is 118, of whom thirty-eight have obtained honors, twelve in mathematics, twelve in classics, six in moral science, six in natural science, one in history, and sixteen have taken the B.A. or pass degree. The latter requires an examination in the Acts of the Apostles in Greek, in one of the Latin classics, one of Greek; algebra, not beyond equations of the second degree, with proofs of the rules of arithmetical and geometrical progression; elementary statistics and hydrostatics; one or more passages of English put into Latin verse; questions on some play of Shakespeare or work of Milton, with an English essay.

Mr. W. Hazeltine, in his "British and American Education," says, "A Harvard degree means more than a pass-man's certificate at an English University," but that a first-class in honors "represents considerably more, both as regards comprehensiveness and thoroughness, than the maximum attainments in the same direction at present secured by the most studious Harvard undergraduates."

One Girton student stood eighth *wrangler* in the first class in mathematics, another lady being also in the first class; and as the examination for this tripos requires six hours daily for nine days, the standard of scholarship may easily be imagined. Mr. Everett, in "On the Cam," says, "The last five days *begin* with the differential calculus and go up to the highest calculation of astronomy and optics." A few of the requirements are Rigid Dynamics, Spherical Astronomy, Finite Differences, Newton's Principia, Lunar and Planetary Theories, Hydrodynamics, Elastic Solids, Expression of Functions by Series or Integrals involving sines or cosines, Thermodynamics, Electricity, and Magnetism.

The term "wrangler" comes from the early days when the candidates for honors maintained in public some mathematical thesis, about which they disputed in Latin, the disputants being called wranglers. The word "tripos," says Mr. Bristed, in his "Five Years in an English University," is supposed to refer to the three-legged stool formerly used at the examination for these honors, though some derive it from the three brackets formerly printed on the back of the paper.

One lady has stood in the first class in moral science; another is studying for honors in theology, and some have taken the law special for their final examination. No woman in England, we believe, can become a lawyer as yet, as Americans understand that term; but she may be a conveyancer. Girton impressed us as being an admirable institution, sending out thorough scholars, who receive exactly the same education and are subjected to exactly the same examinations as the University young men. There will always be fine positions open to women educated to this standard, concerning whose ability there can be no question.

Meantime there had been earnest work in another quarter of the kingdom. At Liverpool, in 1867, Miss Clough, the sister of Arthur Hugh Clough, the poet, assisted by Miss Calder, had started lectures for women in that city and in other places. They worked wisely and very successfully, forming a "North of England Council for Women." The first course was in history. Cambridge professors often gave the lectures, and finally the idea naturally suggested itself that women might as well go to Cambridge and hear the lectures on their own ground. Into this project many of the most prominent professors entered heartily. Professor Adams, the very able astronomer who discovered Neptune at the same time with Leverrier, kindly accepted the presidency of an "Association for Promoting the Higher Education of Woman in Cambridge." A house was rented in 1871 for the reception of those who desired to come to Cambridge for lectures, and a system of "Correspondence Lectures" was arranged, not unlike that in Boston, of which society Miss Ticknor is secretary.

Miss Clough was naturally selected as the proper person to be at the head of the new enterprise, and soon, the house becoming full, Newnham Hall, now called South Hall, was built, and opened in 1875.

This, too, becoming crowded, a similar building was erected across the street, called North Hall, and both together constitute Newnham College. We were fortunate in spending a few days with the seventy students gathered there, and happier, more refined, young women we have not been privileged to meet. The white-haired principal, Miss Clough, seems to be universally loved, and she certainly cares for the students as though they were her children.

Both houses are of red brick, in the Queen Anne style, costing about $60,000 each, and surrounded by grounds of two and one-half acres each. South Hall is already partially covered with ivy, and in these early December days the jessamine-vines climbing up its sides were a mass of yellow blossoms. Sweet-scented violets were gathered from the flower-beds, and the chrysanthemums were rich in color. The interior, painted mostly in cool tints of blue, green, or light red; the windows hung with rich, dark drapings; the cheerful open grates; the large writing-table in each room, covered with books; the tasteful fancy articles that bespeak the delicacy of womanhood, — all make a very inviting college home. Such books as Spencer's Data of Ethics, Walker's Money, Plato's Republic, Kant's Philosophy, Mill's Logic, Bacon's Novum Organum, Aristotle, and Locke lay side by side on the student's table with a bunch of pretty flowers and a bit of embroidery only half-completed as yet. Evidently the old idea that Greek, mathematics, and science would make men out of women has found complete refutation at Cambridge.

Each student has one room, the bed being separated from the study by tasteful draperies. The cost of tuition, board, and lodging is a little less than $400 yearly. Women may not enter under eighteen, but need have no entrance examinations, and may select such courses of lectures as they choose. If they intend trying for honors they must take the previous examinations. With two or three exceptions, all the public lectures of the University professors are now open to women.

North Hall is in charge of Mrs. Henry Sidgwick, whose husband is Prælector and late Fellow of Trinity College, and who, with Miss Clough, has given generously of his means to this noble work. Her secretary is Miss Helen Gladstone, the daughter of the premier. That ladies of such social position are willing to labor, for these places mean many duties and cares, is a hopeful sign for the new era when work for both sexes shall be equally honored, and an idle, useless life despised.

Several scholarships are offered, and there is a fund provided, to help those of scanty means. In nine years, 250 students have come into residence at Cambridge for lectures in connection with Newnham, of whom 184 have passed examinations. Twenty-seven have gained honors, three standing in the first class in moral science, two in history, and one in natural science. No woman has as yet stood in the first class in the classical tripos because no schools have offered to girls the early preparation which boys have at Eton and some other places, where these studies are begun at nine years of age. A classical tripos means translation at sight of all Greek and Latin authors ; the putting of English into Greek or Latin verse or prose, or *vice versa*, in a polished manner; an intimate acquaintance with the political, constitutional, social, literary, and religious history of the Greeks and Romans and their art, and a very wide reading.

An honor in moral science means a knowledge of moral and political philosophy, the relation of ethics to psychology, law and politics,—of such books as Mill, Kant, Spencer, and Lotze in Metaphysics; Mill, Whewell, and Neberweg in Logic; Fawcett and Cairnes in Political Economy; Maudsley's Physiology of Mind; Venn's Logic of Chance; Matthews on Population; Bentham's Principles of Morals and Legislation; Mill's Republican Government, and many more. That several young women have stood in the first class in moral science, after a six days' examination, is proof that they are able to comprehend both logic and politics.

In February, 1881, the University was asked to "formally sanction the admission of women to the examinations which are open to members of the University." A few objected on the ground that loss of health would result from the undue excitement attending the competition for triposes, but as women had for some years obtained honors, granted informally, and one of the leading physicians of the town had stated that he knew of no harm to body or brain having occurred to any student who had distinguished herself, the objection proved futile. A few advocated a line of study for woman "appropriate to her sphere," but others thought wisely that mental fitting for a human being is a thing outside of sex. Said Dr. Kennedy, in an able speech, (the revered canon of Ely Cathedral, one of the New Testament revisers, and translator of many Greek and Latin books): "Deny it who will, I hold they (women) are mentally our equals;" and those who know his family will not wonder how the good man came to his generous and manly conclusion. In all this matter, leading members of the Universary worked earnestly, and deserve the thanks of all American as well as English women. That degrees will come in time, is undoubted, from the kindness already shown by the University.

Those who visit Cambridge in the coming years will probably see not two colleges for women, but many, for the work is but just begun. Thus fitted for usefulness, women will be more capable in homes as well as in professions. Industrial and other pursuits are fast opening to them through such broad-minded men as Professor Henry Fawcett, the scholarly postmaster-general, who has so increased the number of women in the different branches of the Post-Office Department that now 1,276 are employed there. The influence on the coming generation of thousands of highly educated women is incalculable. It will be felt on the important questions which the two great English-speaking nations will be called upon to decide in the next century.

We greatly enjoyed some of the University lectures, especially one by Professor Seeley, author of "Ecce Homo." The lecture-room was full, ladies being on one side and undergraduates on the other. It is said that the young men of the University have been most courteous and cordial in thus giving to women equal opportunities of culture with themselves. Professor Seeley is a somewhat stout, kindly-mannered man, hair turning gray, voice low and musical, and very modest, as a truly great man always is. The lecture was upon the "Separation of the American Colonies from the mother-country," which he regarded as "an event of greater importance than any other in English history." With great ability and rare knowledge the speaker traced the progress of America and her present greatness, and advocated for England a confederation of her colonies, making her a great United States.

After visiting the colleges for women, one could linger in this historic University town for months and never tire of its hospitable and delightful people, nor of its treasures of learning and art. Of course one goes again and again to King's College Chapel, so often called "a poem in stone," 364 feet long and 146 feet high, with its twenty-six magnificent windows of old stained-glass, and its stone roof as delicately wrought as a pattern in lace, though each keystone weighs more than a ton.

Emmanuel College, especially to those of New England birth, possesses singular interest. Built in 1584 by Sir Walter Mildmay, a lover of Puritan principles, it became the home of such men as John Harvard, the founder of Harvard College, Hooker, Higginson, Shepard, and John Cotton. When Queen Elizabeth addressed Sir Walter with, "I hear you have erected a Puritan foundation," his reply was, "No, madam; far be it from me to countenance anything contrary to your established laws; but I have set an acorn, which, when it becomes an oak, God alone knows what will be the fruit thereof." America is showing the fruit in a great host scattered from the Atlantic to the Pacific, who love right and justice with individual freedom. The Romanizing tendencies of the time caused all chapels to be built east and west, but the good Puritan built the chapel of this college north and south. When Charles II. was restored this was changed into a library, and another built east and west. A beautiful founders' cup, supposed to be the work of Benvenuto Cellini, is used once a year.

The building of Trinity College, the largest either at Cambridge or Oxford, is due to Henry VIII., one of the few good things which he ever attempted. This is in honor of the "Holy and Undivided Trinity," to whom he ascribed a very pious anthem, found in the book used at service. From the lines, one would suppose him to have been a saint. At Sunday evening worship we saw over five hundrd white-robed seraphs, otherwise students in their white surplices, filling the edifice. Accustomed to see these garments only on those set apart for holy offices, the effect was somewhat striking, especially when we observed two men, with long rolls of paper, marking all this saintly company, to see if any were absent. The library, erected from designs by Sir Christopher Wren, is a classic building, divided into thirty compartments, its chief attractions being Thorwaldsen's Byron, with a face as beautiful as it is pure, and the original manuscript of Milton's Lycidas and Comus, in small hand, and much interlined. As the poet was not popular at Christ's College, where many go to see the old mulberry tree he is supposed to have planted, though the matter is greatly doubted, he perhaps is glad that Trinity possesses these treasures. The grounds, one-third of a mile in circumference, with their rows of stately limes under which Bacon, Dryden, Newton, Byron, Tennyson, and Macaulay have walked, the graceful bridges over the Cam, and the lovely views in every direction, make one of the most exquisite landscapes which artist ever painted, or of which poet ever sung.

Close by is beautiful St. Johns, with its new chapel, completed only recently, exquisite in varied marble and windows, corresponding with those six centuries old. Expressing our admiration for a section of gorgeous red, we found that it represented everlasting fire in the last Judgment. More attractive surely than the unique frescoes at Pisa, but of the same genial character! Strangers linger longest and most tenderly at the marble tablet to Henry Kirke White, placed there by an American.

Trinity Hall,—the college of Lord Chesterfield, Lord Lytton, the novelist and poet, and many others, — has in its library the desks where books were formerly chained, only the dean and master having the keys. In a most unique book, called the "Nuremburg Chronicle of the World," is an æsthetic picture of Eve taken from the side of Adam, that one should not miss seeing. The combination-room, where the Fellows repair after dinner, has a semi-circular table, with a lazy arrangement of early days for passing the wine-bottle backward and forward on rollers, that the drinkers need not rise from their seats. In the buttery one will see not only the beautiful silver-plate of the college, but rolls of butter an inch in thickness and a yard long, — all butter in Cambridge being sold by the yard! The Fellows' garden, surrounded by ivy-covered walls, and dainty with flowers, is like a bit of fairy-land, more fitting for the exquisite communion of "two hearts that beat as one" than for the walks of Fellows, usually unmarried, to whom such thoughts are supposed to possess no attractions in comparison with the measurements of planetary orbits. Here are two grand old trees, whose branches, taking root, have trebled their size, making five like the parent stock,— so wonderful an agent is time, and so fanciful a worker is nature!

The ivy courts of Corpus Christi must not be forgotten, nor Magdalene, with its celebrated diary of Mr. Pepys, in six volumes, closely written in short-hand.

Through the courtesy of Oscar Browning, Esq., lecturer and Fellow of King's College, we witnessed the conferring of degrees in the senate-house, a spacious building capable of accommodatiug one thousand persons. A procession enters, led by two Masters of Arts bearing large silver maces, followed by the Vice-Chancellor in scarlet gown, with long, ermine hood, and by those about to take degrees. Mr. Browning reads in Latin, and then a candidate Master of Arts, dressed in black gown, with long black and white hood, is led up, takes off his black tasseled hat, kneels, and his folded hands are taken between those of the Vice-Chancellor, who repeats a Latin formula. The next candidates are for the degree of Bachelors of Arts, wearing different hoods. One person is greatly applauded, the reason being that he has succeeded in taking his degree at all, as for many terms much of his time has been given to boating.

The daily rowing on the Cam for practice is a pretty sight, the men being dressed in varied costumes,—the "coaches" running along the bank, calling out their orders. Two hours hard exercise is a rule of college-life. The young ladies of the colleges do not row on the river, and thus fail to get the very best exercise, and perhaps the most delightful pastime in the world.

One cannot leave Cambridge without visiting some of its quaint old churches. The most interesting is that of the Holy Sepulchre, one of the four round churches yet remaining in England, consecrated in 1101, and doubtless copied from that in Jerusalem, — the Pantheon at Rome being the original type of all, probably. The interior has eight short, massive piers, surrounded by a second row, with Norman windows. One wonders what was the service of this little company of thirty or forty worshippers nearly eight centuries ago. Strange that senseless stone should be more enduring than the wonderful hand that shapes it!

Politeness does not allow one to tell of a perfect dinner at Trinity Hall, given by the son of one of England's most distinguished ministers; of a lunch at Emmanuel's; teas at King's and Trinity; a charming party at Newnham; nor of the delightful homes visited, where the culture was as choice as the hospitality was generous.

THE EDUCATIONAL DOCTRINES OF JACOTOT.

BY G. F. KENASTON, A. M.

[Concluded from last No.]

We shall now see how Jacotot carried out these principles in the elementary stages of teaching his native language. For a complete exposition and *examples* of his method, I refer to the article of Professor Joseph Payne, by far the fairest representations of Jacotot's views yet written.

His idea was now to have the child expend as little useless labor and waste as little time as possible before getting into the world of books. He is to keep as near as possible to the method nature has made the child follow till now, only his work must be more systematic. Care must be taken that nothing be done to stultify or misdirect a single faculty of human nature, but the development of all which will be needed in the perfect man must be begun. He determined to use no meaningless *a, b, c*, or *ba, bi, bo, bu*, but to give some nourishment, and have them think as soon as possible.* In short, he used the word-method as it is practised in the best schools to-day, with this addition,—that the pupil was to learn by heart each lesson, and begin with the first lesson each day as long as its extent would allow of it. There is no hurry,—accuracy, attention, repetition, discipline, and thoroughness are the words. After a few lessons the pupil is never to leave a line until he knows "*imperturbablement*" the orthography and meaning of every word, so he will never need to learn them again. He begins to write with the first lessons. The order now is: repeat, add new phrases, repeat, write, verify if pupil has forgotten any word; soon they point out the syllables, then the sounds of the letters. The teacher now applies questions according to the progress of the pupil. The ridicule he received is only balanced by the astonishing success of the experiment. A word is now needed as to the book which Jacotot uses. All is arbitrary in style and language. We learn the words, phrases, expressions, and style which we hear most commonly about us. To save the trouble of relearning and correcting errors in the future, a good vocabulary, style, and method must now be made permanent. a habit, an implement of mind, It is easier to learn a language from a well-written history than from a book full of abstractions. It should overflow with facts and descriptions of nature, with words, acts, feel ings, sentiments, and deeds of men and women, for these are attractive to children. If now we can find a narrative-book rich in words, expressions, style, and sentiments; showing noble, moral, and heroic examples, observations in life, society, duty, and character; full of tenderness, sympathy, and beauty; such a book will have evident advantages over the usual books given to children. He chose Fénelon's great work, "Telemaque," not as perfect, but nearest to his ideal. Fénelon's book, as his manner, thought, and style, can be proposed for a model to the young. "Simplicity and the excellent nature of the aliment embellishes every description." "Telemaque" is the result of the masterly scholarship of Fenelon, and is a realm of thoughts and facts, presenting thousands of nuclei which will lead to all branches of knowledge.

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* "The admirable spirit of inquiry which nature has given to the child is soon checked, if we present to him words instead of the ideas which he wants."—*Marcel.*

The study of the native language has now begun. The pupil has already, in learning to read, become familiar with the first sixty lines of "Telemaque." Here is the one thing known; refer everything else to it, Repeat "sans cesse," add a few lines every day, verify if the pupil knows the orthography of all the words, and begins to know their meaning; refer both words and ideas to their use before in the book. Write every lesson. By questions in regard to words, phrases, sentences, and why the author has used them; verify if the pupil pays attention to every point. By this time the pupil has learned one book (thirteen pages), and has so got the spirit of the author that memorizing is very easy. His way, now, becomes more and more critical. Questions multiply. He repeats twice a week the first book; refers every new lesson to it; campares words, phrases, sentiments, facts, and characters; seeks agreements and differences; makes observations, soon generalizations; and tells the story in his own words. Now write your story, then observations upon it; make a composition. In all this the pupil must keep close to his model-book, and justify every thing by reference to it. He must not only make his own reflections and judgments for himself, but be able to tell why he thinks so.

I shall now give, without examples, a series of exercises in which Jacotot sought to develop his pupils' minds, fit them for all other studies, and any field of life: (1) Be sure you have the pupil's attention in every exercise. Excuse a fault of orthography far quicker than "lack of attention," the mother of ignorance. Stimulate your pupil to do for himself. Use all your genius to arouse the attention, memory, judgment, and reflection of your pupil by your questions.

(2) Exercise them in weighing the value of words, sentences, illustrations, and individual parts of the model-book. Verify every assertion by reference to this model. Have them give analyses and abstracts of each part. (3) Make imitations. Take some general sentiment from the book, and write a development of it with different circumstances, terms, and conditions. The pupil reads, and is asked to verify and justify the use of every sentence, the grammar and arrangement, by comparing with the model. (4) Make original reflections and investigations on facts in the book. Here he must use all his powers and knowledge to make his extended generalizations. By questions he is brought to see how many facts, illustrations, and arguments he might have used to sustain his point. He now is urged to make little speeches on any subject. Thus Jacotot leads his pupils to see the necessity of every thing they are learning, and this necessity spurs every faculty. (5) Draw portraits and define elements in the characters of these men of the book. Compare one with another and write their lives as seen in the model-book. (6) Give and explain the uses of the same word in different significations, also different significations of synonymous words. This is done by repeating the lines and circumstances where they are used by the author, comparing and testing the fitness of each word. They are now exercised in writing compositions upon pairs of synonymous words, substantiating every assertion by examples from the model-book. Sentences are read from other authors and the use of words and power of expression compared with Fénelon. They are then interrogated upon the descriptions and use of words in their own compositions. (7) Give examples, and distinguish between synonymous expressions, sentences, subjects, and figures of Rhetoric. (8) Traduction or translation. This assumes a more general and abstract character than imitation, and is the source of inexhaustible exercises. The pupil is to make general reflections from particular circumstances, and generalize from the acts of men their motives, and seek the results of these as applied to different men and circumstances. For example, if he finds that foiled ambition brings regret and grief, compositions are to be made on these as arising from other causes. He is also exercised in finding subjects for traduction; for there must be an analogy in the facts, circumstances, and tendencies. (9) Select and examine analogous thoughts as they appear in different parts of Fénelon. They have given analyses of each book, and now gather up the principal thoughts, reflections, and maxims, and prove his principle, "*All is in all.*" (10) Make synonyms of composition. The pupils have now learned by heart the first six books of Telemaque (75 pages).

They have read the remaining eighteen books, made them the object of numerous exercises, compositions, and analyses (as above). This exercise consists in taking analogous subjects and developing them after a model scheme which they have been led to form from Fénelon's manner of treating similar subjects. He now urges the pupils to cultivate the art of speaking after their model. This is most useful, for he who knows how to speak well can write, but the opposite is not always true. (11) Develop and paraphrase the thoughts, subjects, and reflections of the model-book. (12) Another book, chapter, poem, or any subject is put into their hands, and they are to study, recite, and give a careful analysis and the scheme upon which it was constructed. (13) Pupils are now to study and practice the art of narrating events, writing letters, sketches, tales, etc. (14) Model essays, orations, poems, narrations are given them, and they are to find from each the laws and principles by which it was constructed, and then use these forms to construct compositions of their own. (15) Write upon any literary, critical, or narrative subject. (16) Improvisation of compositions on any given subject in a given time. (17) Improvisation of speeches on a given subject.

Perhaps nothing in a system of education will better show its applicability to the development of the faculties than that a pupil shall be able to bring them to bear on any topic, and so, at once, write or speak to the point in precise and well-arranged sentences. Jacotot did not encourage or believe in the precociousness of children, and yet proofs are plenty that his pupils from ten to fifteen years of age could improvise well-arranged, original, and accurate speeches on any subject within the realm of their knowledge. M. J. Kinker in his report says that pupils of ten, eleven, and twelve years of age improvised on subjects which he gave them with an ability and accuracy most astonishing, and pupils but little older did this in foreign languages better (as he himself says) than himself or his professional colleague could use the language. If a system of education can show results anything like these it demands our attention. The means used by Jacotot seem almost to warrant such results. Improvisation was a means as well as a power. (1) It aroused a deep interest in whatever the pupils heard or read. (2) It is a direct way to bring the pupil's powers into self-activity. (3) It tends to develop the will and power to conquer self, and give a combined direction to the faculties. (4) Life is full of emergencies when thoughts, words, and acts to the crisis are needed, and this faculty, developed with care, is most practical. (5) It adds dignity to our relations with our fellowmen, and gives power to move and lead them.

(18) The study of formal grammar was now introduced. No rules were learned at first, but with the model-book and grammar in their hands they developed the principles, rules, and methods of the language. (19) This exercise consists in comparing all the branches of knowledge the pupil has studied, or is studying, not only in books but in any human works whatever, to prove or disprove his great paradox, "*Tout est daus tout.*" Subjects and books were studied with special reference to find the new in the old, and the old in the new.

In all these exercises the teacher may vary them infinitely, according to his genius and tact, so as to keep the interest and mental activity of the pupil on the alert. But he insists upon the "secret of all mental power"; know one thing or book in all its relations, refer all others to it, repeat "*sans cesse,*" and verify all by a comparison with the facts and objects from which they are generalized. It may be said by some that it is impossible for children to do all these things, but Jacotot has proved that it is not only possible for children under fourteen to do them, but to do every one of them in a most successful manner, not only with their own but with foreign languages. (1) In the first place they are adapted to the minds of children, and every observing teacher knows that they can be led to perform these exercises. They require memory, discrimination, observation, attention, and a continual exercise in adaptation, comparison, investigation, and reflection, while reasoning, judgment, and invention are brought into play in a proper degree. (2) The pupil is conscious of his success as the result of his own efforts, and thus is delighted and encouraged. (3) The knowledge and inclination of the child when he comes to school prepare him for these exercises. (4) Every step prepares him to enter upon the next. (5) He is not allowed to forget words and facts once learned, and so loses no time or labor in re-learning the same thing a dozen times. In fact his labor is far less up to fifteen years of age than by the usual methods. (6) Spelling and defining words here find their proper and natural place. (7) The instruction in grammar is here a reasonable exercise, whereas it is not as taught in most of the schools of to-day. They have learned their language from the masters of the grammarians, and can now appreciate and understand the science of language. (8) The pupil is now prepared for study, and the exact study, of foreign languages and the sciences in a scientific manner.

The limits of this paper do not permit me to show how he applied his principles to the various sciences. His native language was necessarily the fundamental branch of study during the first two or three years of the child's school-life, and, taught in Jacotot's manner, it, of necessity, tended to simplify other branches. The language of mathematics was begun the first year of school, and hastened by going very slow and never passing a thing until it was comprehended. Discipline and power, here, come from conquering thoroughly one subject and not going over many. They are to develop their principles and rules as much as possible from the concrete examples. Every step must give positive and ineffaceable knowledge. Learn, repeat, refer to the fundamental principles, apply and verify; this is the method. As soon as the pupils get into the spirit of their language, a geography, and then a history, is placed in their hands. This they studied in the same manner; of course referring to the model-book, and writing compositions, for it was not education* or instruction to Jacotot unless every seed dropped in the mind could produce something; it must not be the mere furniture, but the active agents and implements of the mind. As soon as pupils became skillful in the use of their language, and were grounded in the elements of the common branches, the higher studies received their attention. By his system they were enabled to accomplish vastly more in the years allotted to school-life than by our methods. The great array of studies which James Freeman Clarke says pupils ought to accomplish in a course of fourteen years of instruction seems possible by this method and by none other yet tested.

I now endeavor to deduce from the principles and method of Jacotot the fundamental advantages of his philosophy of education, as it applies to the first stages of school-life. The school is not an end, but a means. A means (1) to aid the pupil in developing his faculties; (2) to give a desire, right direction, and method for the use and instruction of the whole man; (3) to assist in fitting him to begin life; (4) to give him a tendency to make as much of himself as is in his power; (5) to teach him to be thorough, careful, industrious, and rely on himself; (6) to teach him how to learn and to work intelligently in any field of action or inquiry, and to give him a taste for fruits of the world's thinkers. In order to do this the school must teach the fundamental principles of knowledge, and give materials for future reference and use; the more and the more active kind of knowledge the better.

(1) The principles of Jacotot's system rest upon the basis for a Science of Education. (*a*) It is adapted to the mental constitution of the child, and to bring into play every function of the mind.

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* Education, from *Educare*, a frequentative verb from *educere*, and means to draw forth the faculties, or train them. Instruction, from *instruere*, and means to place *in order*, and for a *definite object*.

While it aims to discipline the presentative, it does not forget the demands of the conservative faculty. All methods aim to train the reproductive faculty. Jacotot considers the representative of no less importance; and its whole tendency is to give the elaborative and regulative faculties their proper place and development. (*b*) The method is adapted to the fundamental principles of knowledge, and the very mode of its acquisition is a model of discipline, and not a loading of the mind with undigested material. "Who grasps much holds none firmly," and gets but little real training. Seed planted on the surface of the mind begets neither reflections nor new thought.

(2) The method follows nature, "the archetype of all method," and the principles recognized by the thinkers of the world as the correct method of the learner. Nature makes her pupils observe, investigate, repeat, reflect, experiment, compare and verify; she never explains. Every successful student will bear witness that it is the key to his ability. Success in attainment and discipline, at any age, depends upon knowing one thing thoroughly, and referring everything you read, or hear, or see to it by reflection.

(3) It promotes the self-activity of the pupil. It begins with the spontaneous activity of the child's mind, and gives the nutriment adapted to the child which rouses and sustains the self-activity of the pupil. It recognizes that the main problem here is to train every faculty to its proper function. The teacher's duty is to guide, stimulate, and cheer by his own interest and enthusiasm. The pupil is neither developed nor instructed by what is told him, for it passes away as easy as it comes. He is most assisted when not assisted at all,—only directed. A bird never learns to fly but by incessant practice. Practical capacity in the world will depend not on the amount of knowledge he has in his head, but on the power with which he can apply every faculty of his being.

(4) It tends to train and give right directions to the will. This is the prime factor to be considered in education, for to it is due largely the intellectual and moral difference between men. Attention and application depend wholly on the *will*. Without these neither acquisition, retention, nor development can succeed. The will is guided by that which gives pleasure or its opposite, and it ceases to command when these are taken away. Work beyond this interest is forced by the teacher, and can bring but small results. Here lies the supreme importance of the teacher, in whom enthusiasm is worth more than all the learning of Greece. But a tale, or narrative, of men in action never fails to arouse and stimulate the emotions and attention of children. This narrative may be a work of art, filled with instructive

moral lessons and examples, and these, while they interest, will instruct. In this book the pupil learns to rely on himself, to take delight in the right use of his faculties, and his will takes the right direction. The impress of these first years is for life.

(5) Jacotot saw that curiosity, imitation, motives, interest, and emotion are important factors in the education of children. The abstract and symbolical subjects, arithmetic, grammar, do not arouse and are not, at first, adapted to the capacities and susceptibilities of the dawning senses and intellect. A child should not learn rules and formulæ which he is not prepared immediately to understand. Time and energy on these do not give the longed-for pleasure and interest, and so do not awaken the self-activity, but do injure the working perception and memory, and give distaste for mental labor. The child that is dull at school, and hates grammar and arithmetic because he is not ready for them, will read and recite a narrative with animation. His mind is just as impressible as that of older people to objects of beauty, earnestness, and sympathy.

(6) It rightly combines the analytic and synthetic methods of the mind. It is not enough that a pupil learn and recite the individual facts of a book ; he must organize them into a whole again, see their bearing and force on one another and on the whole. The natural and necessary supplement to the analysis of a subject is its production in an organized whole. The inductive and deductive processes are trained from the very first. Investigation and classification, no less then acquisition, involve numerous conditions and processes which have worth in every step of life, and are now exercised in all their forms until they become habits of mind.

(7) "To extend the knowledge of language is to extend the knowledge of objects." This gives a knowledge and correct use of the native language.* This is the crying need of the schools of to-day. Not only children, but the older, have a deplorable ignorance of the force of words, figures, and style. This causes a distaste for reading and study, for they do not get any meaning from the page, or they mistake the thought and force of what they read or hear. Our language is largely metaphorical, — full of metaphors and synonyms, whose beauty, force and suggestion are lost unless particular attention and study are given them. Without understanding these, what can we expect youth to read? The masterpieces are clothed with them, and so are sealed books to most pupils. Jacotot's system, not only in his own, but in his pupil's schools, produced students who

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* I hold that the proper study of language is an intellectual discipline of the highest kind.—*Tyndall.*

spoke and wrote their own and foreign languages in as good style as the masters of the language. In every point, here, it not only has every argument in its favor which is adduced by Supt. Peaslee of Cincinnati, and others for the introduction of gems of literature into the schools, but it has vastly more real advantages, such as going from concrete to the abstract, exciting a continued interest and attention and appreciation; and besides, the study of a whole work has eminent merits for pupils over numerous patches. "If you wish to know what can be done with a full-freighted command of language," said Lord Brougham, "read the works of Benjamin Franklin, a man who bore the second part in founding one of the greatest empires of the world." Franklin read no foreign language, but his method of studying Addison was just what Jacotot would have every school pursue. Daniel Webster says he obtained his power over words by a careful study of synonyms. Does not the continual advice of the wise to give your time and study to the men who write their language in its purity and force apply to children? Is it strange that results are slow and poor in the classics of ancient and modern languages, in mathematics and science when pupils have not learned the force and bearing of words, phrases, and sentences in the authors of their own language?

(8) This method is a correct beginning of the study of literature. It is safe to assert that double the time is wasted in studying foreign languages and literatures that would be if some of our literary models were mastered and interest aroused in them as a preparation for the classics of the world. Most pupils go from school with having learned merely the names of the choicest products and educators of mind. All these will have lived in vain for the pupil, since a large part of the twelve years of school-life must be spent in arithmetic. This is perhaps the most important study of school, but there is an inordinate amount of time spent and wasted upon it in the common schools. Bain says, "It does not teach us how to observe, how to generalize, how to classify." It does not refine the feelings of children, touch the emotions, rouse the enthusiasm, awaken the love of beautiful thoughts, or enkindle devotion. Jacotot's method of beginning the study of literature is the very royal road to accuracy of words, expression, and thought; it trains, excites inquiry, instructs, and disciplines no less than mathematics. Men are made, not from grammar, arithmetic, or patches of this or that, but by principles which grow into the consciousness from the examples and facts with which they are imbued by their contact with men and books. But, hurrying from from one subject to another, getting the inner spirit of no selection nor author, but continually on the surface among the words, does

not nourish and develop. We cannot truly live with such excellencies of literature as Fénelon's work, without growing into its virtues. But most of our pupils go from school into the walks of life without ever having been upon the mountains, in the atmosphere, light, and spirit of the masters. I believe that Jacotot's success will show the future the immense importance of not only prose, poetry, and oratory, but of fiction, as an element in the school. These have a telling part in awakening and elevating the feelings and intellect of the pupil, in giving new impulses, sympathies, and interests; in refining their taste and natures, and in leading them within the influence of "that most subtile master under heaven, the love of truth, beauty, and nobleness."

(9) This method makes the child a producer from the first. The effort in composition requires the pupil to be alive to every object, fact, and process in it. This causes them to see the need of what they are learning, and teaches how to apply it. There is no way completely to comprehend a description or argument unless you practice the art of making it. The force and exact meaning of words and sentences are never known until you use them. Sir William Hamilton says that a man never knows anything until he has taught it by tongue or pen. Experience shows us that knowledge is not our knowledge until we put it into expression.

(10) It trains the power of vocal expression. Read as you should speak, says Jacotot. It makes good readers and speakers because the first work is to get vivid impressions of the idea. Reading is not the mere calling of words, as is necessarily the case when the pupil goes hastily over what he does not understand. Too much stress cannot be put upon this point of the system. Pure and excellent speech, a clear, expressive voice, more than the best music, reflect their stamp, in culture, on our character. They have, also, the most potent influence in social, business, and public life. "The main thing to be considered," said Locke, "in every action of a child is what influence it will have upon the mind, what habit it tends to, and is likely to settle and strengthen in them." Bishop Berkley says that "one-half the learning and talent of England is lost because elocution is not taught in the schools." I would not urge the vocal training which this system gives first, for its practical use, nor to prevent the poor speech of society, nor to first teach those who are to be lawyers, ministers, or orators to speak with effect, but because by this means a taste for poetry and eloquence may be evoked. This taste lies dormant, and because not cultivated, its educative power is lost.

(11) It inculcates from the first a method of classifying and organ-

izing our knowledge. Every lesson is so mastered in its relations that it finds its connection with the old and thus is not left in a vague, shadowy, ill-defined, and useless state. In our present system of education we acquire many facts, but they lie so unconnected and incoherent, or are so loose and vague that they are useless and soon lost. Students do too much patch work, and so educate (*educare*) too little. Not one-tenth of the labor done by most students pays in discipline or knowledge, just because from the beginning they are allowed to proceed on a "cram" process from the outside, and not on a drawing-out process from within. Hear Coleridge: "Alas!" says he, "how many examples are now present to my memory of young men, the most anxiously and expensively be-school-mastered, be-tutored, be-lectured, anything but educated; who have received arms and ammunition instead of skill, strength, and courage; varnished rather than polished, perilously over-civilized, and most pitiably uncultivated! And all from inattention to the method dictated by nature herself, to the simple truth, that as the forms in all organized existence, so must all true and living knowledge proceed from within; that it may be trained, supported, fed, excited, but can never be infused, or impressed." By Jacotot's method perfect unity reigns in all the infinite variety. All knowledge is brought by discrimination to its own class, and the chain of association makes it useful. Unless experience and knowledge are thus brought into an organized state, they do not sustain and invigorate each other, and memory tries in vain to retain them.

(12) This method keeps in equilibrium the educative and instructive processes of the child. Its great object is to prepare the pupil to interpret men, nature, books, language, in fact everything it meets in the world.

(13) It has nature's method of teaching morals. It leads to see, live with, and love the good. Example educates the child as well as man, more than precept. Reading of noble men in action always educates the child more than its abstract qualities or unorganized bodies. The model-book will bring the child closer to nature in her best aspects, because the writers of such books constantly reverence and reflect her beauties and teachings, and we cannot truly live with nature, art, and religion in good books without being built up into their virtues. "One noble impulse will do more toward ennobling men than a volume of ethical precepts."

(14) This method does truly lead from the concrete to the abstract, from the particular to the general, from the empirical to the rational, from the known to the unknown, as much as is nature's custom.

(15) While the method is especially adapted to the necessities of the vast majority of pupils who will leave school in the secondary and high-school grades, it is not less eminently fitted to prepare them for higher instruction.

Such I deem some of the advantages of Jacotot's doctrines of education. While many of these are attained in the excellent school-work of to-day, yet I can but think the system has practical lessons for our teachers. The results, when dispossessed of exaggeration, are what we should expect of it carried out in the spirit of its conception. Doubtless the enthusiasm of its founder was the soul of it when he was alive, and that afterward practices unworthy of it crept in. If Jacotot taught a class of two hundred pupils the French language in six weeks, no one will say but that the man was a greater element than the method. But this only shows the worth of enthusiasm to foster the growth of mind. The objection will be made that common teachers will be unable to carry out the best part of the system, and so it will degenerate into mere memorizing. I am not sure but this would give better results than the poor teaching of to-day does give. It is most probable that when the true scientific method of teaching shall be found, it will be proved impossible for teachers with little knowledge, spirit, and enthusiasm, or without special instruction in the art and science of teaching, to apply it with any degree of success. Jacotot's pupils applied his system with as astonishing results as himself. Joseph Payne tried it with Homer, with excellent results. It is now used in parts of Germany, France, and Belgium with preeminent success.

BOOKS CONSULTED.

Langue Maternelle et Mathematiques. *Jacotot.*
Science and Art of Teaching. *Joseph Payne.*
The Study of Languages. *C. Marcel.*
Lectures on Science and Art of Teaching. *W. H. Payne.*
Education as a Science. *Bain.*
Geschichte der Pädagogic; Vol. III. *Von Raumer.*
Geschichte der Pädagogic. *Carl Schmidt.*
Educational Reformers. *R. H. Quick.*
Emile. *J. J. Rousseau.*

THE PLAY-GROUND OF SCIENCE.

BY REV. PAXTON HOOD.

It is more than possible, it is exceedingly probable, that some scientists may express many and very grave objections to the idea implied in the superscription of our paper; the dealing with the amazing facts and discoveries of science in what Schiller happily calls "the play spirit"; but we may suppose the number to be rapidly decreasing of those who imagine that knowledge should *not* be made interesting. The pursuit of knowledge under difficulties has been, by many scientists, supposed to be even essential to its attainment, and the worth of its lessons was synonymous with the pain endured in the pathway to the steeps where the temple of learning shone afar. If any arguments of a substantial nature could ever be urged for these notions, we suppose they would fall now, and upon very listless ears. We believe it has come to be recognized that the more interesting knowledge can be made, the better; we have even seen some of the earliest mathematics turned into sport. Can it be that the world is more interesting itself than in our father's day, that thus so many methods are employed to call forth enchantment and entertainment for young minds from so many objects? But still, for the most part, Science and its subtler teachings are regarded as rather remote and forbidding ground.

One of the most pleasant of our modern novelists, George Macdonald, has described the way in which a tutor struck down his shafts into the mines of knowledge, and succeeded in kindling a glowing interest in the mind of a pupil who was very indisposed to be interested. He very truly says that "things themselves should lead to the science of them." If things be not interesting in themselves, how can any amount of knowledge about them be so?—and then he writes a chapter called "Geography Point," in which, indeed, he fetches "a tooth-picker from the farthest inch of Asia," to teach the rudiments of geography. Without any globes or maps, we should premise that the little pupil had a sad prejudice against all learning in general, and against geography in particular.

Next morning, Hugh (the tutor) and Harry went out for a walk to the top of a hill in the neighborhood. When they reached it, Hugh took a small compass from his pocket and set it on the ground, contemplating it and the horizon alternately.

"What are you doing, Mr. Sutherland?"

"I am trying to find the exact line that would go through my house," said he.

"Is that funny little thing able to tell you?"

"Yes; this, along with other things. Isn't it curious, Harry, to have in my pocket a little thing with a kind of spirit in it that understands the spirit that is in the big world, and always points to its North Pole?"

"Explain it to me."

"It is nearly as much a mystery to me as to you."

"Where is the North Pole?"

"Look; the little thing points to it."

"But I will turn it away. Oh, it won't go! It goes back and back, do what I will."

"Yes; it will if you turn it away all day long. Look; Harry, if you were to go through, in this direction, you would come to a Laplander harnessing his broad-horned reindeer to his sledge. He's at it now, I dare say. If you were to go in this line exactly, you would go through the smoke and fire of a burning mountain in a land of ice. If you were to go this way, straight on, you would find yourself in the middle of a forest, with a lion glaring at your feet, for it is dark night there now, and so hot! And over there, straight on, there is such a lovely sunset! the top of a snowy mountain is all pink with light, though the sun is down. Oh! such colors all about, like fairy-land! And there,—there is a desert of sand, and a camel dying, and all his companions just disappearing on the horizon. And there,—there is an awful sea, without a boat to be seen on it, dark and dismal, with huge rocks all about it, and waste borders of sand,—so dreadful!"

"How do you know all this, Mr. Sutherland? You have never walked along these lines, I know, for you couldn't."

"Geography has taught me."

"No! Mr. Sutherland," said Harry, incredulously.

"And," said Hugh, drawing a telescope from his pocket, "this hill is henceforth Geography Point, and all the world lies round about it. Do you know that we are in the very middle of the earth?"

"Are we, indeed?"

"Yes; don't you know any point you like to choose on a ball is the middle of it?"

"Oh, yes; of course."

Now this study was the very play-ground of science; it is not, indeed, every tutor who is a Hugh Sutherland, but many more might be like him if they would make the subjects on which it is their business to instruct interesting to themselves; then they could not fail to interest others, and to this end we want more scientific manuals suited to the young.

Man, it has been truly remarked by Professor Tyndall, has a power of penetrating far beyond the boundaries of the five senses. The things which are seen in the material world depend for their action upon things unseen; and, in short, we see that besides the phenomena which address the senses, there are laws, principles, and processes which do not address the senses at all, but which must be, and can be, spiritually discerned; hence, we find man gifted with a mind curious to know the causes of things. He is surrounded by objects which excite its questionings, and raise the desire for an explanation. It is related of a young prince from the Pacific islands, that when he first saw himself in a looking-glass he ran around the glass to see who was standing at its back. And thus it is with the general human intellect as regards the phenomena of the external world; it wishes to get behind, and to learn the causes and connections of these phenomena. What is the sun? What is the earth? What should we see if we came to the edge of the earth and looked over? What is the meaning of thunder and lightning, of hail and rain, storm and snow?*

The demand of the age is for science; this is illustrated in the scientific articles which appear from time to time in our most popular periodicals; month after month they appear,—some hard, many readers say heavy. We shall not dispute with Mr. Matthew Arnold, whether his pessimistic view of our age be a correct one, when, in what seems to us a poor kind of grief, he sings its epicedium:

"The epoch ends; the world is still,
The age has talked and work'd its fill,—
The famous orators have done,
The famous poets sung and gone,
The famous men of war have fought,
The famous speculators thought,
The famous players, sculptors, wrought,
The famous painters fill'd their wall,
The famous critics judged it all.
Uphung the spear, unbent the bow,
The puissant crown'd, the weak laid low;
Many spent fames and fallen mights,—
But one or two immortal lights
Rise slowly up into the sky,
To shine there everlastingly,
Like stars over the bounding hill.
The epoch ends, the world is still."

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*Tyndall's Fragments of Science for Unscientific People, page 73.

We do not believe the doctrine of this melancholy dirge at all, however we may listen to its harmony; but, however it may be with the great instances to which Mr. Arnold directs his mournful and affectionate memory, assuredly science is alive, and the popular mind demands science, — and science with all its attendant train of *ologies*, and *ographies*, and *atomies* is in the school-room too, and it is vain to say that it is of no use taking up such subjects unless you excel in them; and it has been truly said *Mediocribus esse* is no more conceded to chemists or zoölogists than to poets. It is a very weak argument. Who wishes or expects every boy who dabbles in chemicals, or constructs a toy electrical machine, to become a Lavoisier, or a Wheatstone, — a Farady, or a Tyndall? Drawing and painting will probably be always taught in schools, though no one is foolish enough to think that we shall ever, on that account, have many more Landseers, or Copley Fieldings than we should have if drawing were as little taught in schools as casting in metal is. Yet, though scarcely any one expects his son to turn out a first-rate painter, the father is glad to have him taught the rudiments of the art if only to please himself, and his friends, by filling his portfolio with sketches while on a walking tour.

And so of science: it should also take an honorable rank in our schools; of popular science, we very well know, it is said that the lectures upon its topics are few, and that most of the lecturers have not the ability to make the doctrines lucid and the illustrations attractive; but we cannot attribute this melancholy absence of interest to the fact that the great arrangements, the marvelous combinations and transformations of nature are supposed to have little interest to ordinary hearers. How strange, is it not, that readings of poetry, passages of fiction, humorous scenes and complications, should have such power to entertain while the great mysteries of nature excite little curiosity, and seem unable to stir a sense of wonder in the mind! It may be, indeed, that such knowledge is too wonderful, — so high that the ordinary mind cannot attain to it, while the humors of every-day life are easily understood, and the clink of rhymes readily effects the ear. However it may be, there is no doubt the impression that science is not interesting, and that only to the initiated, and well informed, can it be made thoroughly entertaining. Such works as some to which we may refer quite contradict this impression, and it is desirable that we should possess volumes such as M. Marion's "Wonders of Optics," and M. W. de Fonvielle's "Thunder and Lightning,"—volumes which may be used as an entertaining lecture, and in which the engravings have all the effect of a succession of well-executed dissolving views.

We have already referred to the utter prejudice in many minds against such popular expositions of science. Thoroughly-furnished scientific minds have, we have said, often contributed to the prejudice, regarding it as a mere playing with the magnificent tools, and idling in the illustrious walks of science, — regarding even the reading thoroughly of such books as we have instanced, or may instance, as, in the well-known language of Dr. Johnson, "the getting a mouthful of all subjects, and a belly full of none." But a mouthful in this sense is all that most can digest; we may not hope to make all over our boys' natural philosophers; and in regard to this, as a great statesman, Lord Palmerston, said, even when addressing a concourse of students at Glasgow, "a little knowledge is better than none at all." All have the ordinary pursuit, occupation, and knowledge of life with which they are familiar, which is the bread-winner; beyond this, to most, it must be that poetry, or fiction, or science, or philosophy is the appendix, the dessert, the occasional wine of life; but the occasional entrance upon the border-lands, the outskirts of some great continent, or department of science, can only have the effect, if the mind be at all prepared, of enlarging the boundaries of thought and observation, and elevating it to the immense regions of knowledge beyond the ordinary highways of life. And, indeed, in our day magnificent achievements, stupendous performances, have become so much the order of circumstances that the ordinary mind needs to step aside into some quiet exposition of science to keep even the sense of wonder healthfully awake. The wonderful has almost ceased to be impossible to us, — what with Menai, Saltash, and Montreal bridges, Atlantic cables, photography, electric lights, telegraphs, telephones, and stereoscopes, and ten thousand other marvelous things which we handle daily without being impressed by their marvelousness. Some lesser, some more exceptional, flash arrests the attention and excites the wonder, leads to more recondite observations; and scientific anecdotes and well-put analogies are of a nature more gently but, perhaps, more really, to open, to stimulate, and to agitate the mind.

Let us begin, then, by making the facts and inductions of science interesting in the class, and in the school-room; and let the teacher feel that he has taught nothing until he has given to his pupils *ideas*. And what are ideas? Definite conceptions of things; for science, especially, cannot be merely taught *by rote*; — that which has been made interesting to the mind is engraven, not merely on the memory, as an inscription on a mysterious tomb-stone, it has been assimilated into the living consciousness.

The merely technical has often been, perhaps always is, a barrier to the apprehension of real knowledge; learning things by rote, so that a stupid child may let every faculty sleep, while pretending to learn the answers to a set of questions, and if the order of the questions be only inverted, we come to something as ludicrous as the scene described between Frederick William the Great and the tall French grenadier who only knew three sentences of German. He had been snapped up on account of his great height, and was instructed to reply to the king's three general questions on parade, — "How old are you?" "Three and twenty." "How long have you been in my service?" "Three years." "Are you satisfied with your rations and lodging?" "Both, your Majesty." The king, however, took the very unusual course, in this instance, of inverting the order of his questions; and so, having heard that the three-years-old infant, of six feet high, had been twenty-three years in his service, he followed up his research by the inquiry, "Are you a donkey or am I?" and was answered, "Both, your Majesty." Such delicious inversions of all sense would be frequently found in the replies to questions where the teaching has been merely technical, without an effort to *educe*, or to draw out living knowledge, and so to substitute an active intelligence for a merely mechanical and, perhaps, a misguided memory.

It has been said by one of the most distinguished masters of fiction, Lord Bulwer Lytton, that, in adopting to his purpose the result of his personal observation on men and manners, he found himself compelled to modify the real in order that he might bring it within the limits of the probable. How truly this remark is illustrated, whether we dwell amidst the unexplored borders of nature, which only operate about us as phantoms starting from and retreating into some marvel-chamber, or whether we proceed to apply the hints given, and so compel the secret from its hiding-place to turn its marvels into utilities. Science teaches that Nature is the instrument and vehicle of Divine ideas; that is, the imaginative aspect of, or, as some would express it, the poetic relations of scientific things. Perhaps most of our readers know, and have read Dr. Faraday's lectures to children, on the "Chemistry of a Candle;" it is a small book, — it is very simple, — there is not a word in it children may not understand; but, in his hand, a simple candle becomes a marvelous Aladdin-lamp, and the book shines like an electric light. The illustrious author, in his very first remarks, says he has selected a candle because, in his illustration of it, there is not a law under which any part of this universe is governed which does not come into play and is touched upon by the phenomena of a candle; and there is no more open door by which to enter into the study of natural philosophy than by considering so simple a thing as a candle. To the common mind everything is common; but, when the true Aladdin kindles even a candle, wonderful visions start forth from its luminous flames. It is even wonderful that the extraordinary interest of almost everything that is, is not more recognized; it is wonderful that so many people are fond of what is called poetry, — that is, word-music and idea-painting; — that almost everybody is fond of fiction, and its frequently really charming processions of characters and scenery; and that the wonderful kingdoms, and the amazing transmutations of science seem to be in so slight a degree interesting to us. Well may we wonder that we are not more frequently charmed, our attention more absolutely compelled by many of the mysteries of nature and her altogether startling phenomena. A very similar book to that of Faraday's, on the candle, is that of M. Jean Mace on "A Bit of Bread."* M. Mace addresses his little correspondent, in the commencement, by saying, "I am undertaking, my dear little girl, to explain to you many things which people generally think very hard to be understood, and which grand young ladies do not always get taught to them. If we manage, by putting our two heads together, to get these matters into your head, I shall be very proud, for my part, and you will see how very amusing, for little girls, is that science of our learned men which the said learned men sometimes pretend is so dry and uninteresting, — the history of a mouthful of bread." Now this kind of teaching is not only interesting, it is valuable, and this kind of teaching it is desirable should be in the possession of those who have children beneath their care and control. No one who has been much with children can fail to have been struck by the pertinent questions they constantly ask about what they see in the world of nature. As they grow up the questions get fewer; for, in general, the little inquirers are either repressed by parents, who do not care to show their own ignorance, or else chilled and baffled by their manifest inadequacy, — manifest even to their apprehension, — of the reason which is hesitatingly assigned. What opportunities do such questions offer to mothers! Mothers are, of necessity, the earliest teachers; but, frequently, the mother is quite unequal to the heaven-assigned office conferred upon her. We remember to have heard, the other day, a little fellow, of very average quickness, puzzle his mother, and almost woefully, by the question, "Why does the rain come down in drops, mamma? How is it that it doesn't all pour down with a slop and a splash, as when we pour water out of a bucket?" I quite believe that most of the adults who heard him would, if hard pressed, have fallen back on the gigantic shower-bath principle I have heard suggested; that the solid firmament was provided with a sort of double bottom, one pierced with holes through which the rain came when Providence, pulling the string, withdrew the covering-plates. And it is very singular that we have known many mothers who could give to their children a fair notion of the difference between Arians and Socinians, — who would come out quite strongly on the distinctions in ecclesiastical or theological terminology or nomenclature, — who could instruct their little ones in the wars of Joshua, or of David and the Philistines, or who would even give their children some account of the passing controversies of the day, and make young Biblical critics of them, but could give to them no account of the wild-flower which they bring from the hill-side, and has never remarked the distinctions between forest trees; — and how, just as each has a differently matured wood adapted to different uses, so has each a different type of growth and a different shade of green, not merely in spring-time, but all the year through.

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*L'Historie d' une Bouchée de Pain. Lettres à une Pétite Fille sur la Vie de l'Homme, des Animaux.

Thus, then, we wish there were more scientific marvels for the young, or for those who might desire to convey these charming marvels to the mind of the young, — books which should excite wonder, not so much by analytic, as by a synthetic view of natural things; in a word, books which should be a kind of play-ground, and make science interesting. Teachers, and people in general, are often unfair to science because they do not see its end. Our noble poetess has very finely said:

"How is this,
That men of science, osteologists,
And surgeons, beat some poets, in respect
For nature — count naught common or unclean,
Spend raptures upon perfect specimens
Of indurated veins, distorted joints,
Or beautiful new cares of curved spine;
While we, — we are shocked at nature's falling off, —
We dare to shrink back from her warts and blains —
We will not, when she sneezes, look at her,
Not even say,[*] 'God bless her!' that's our wrong."

"The Arabian Nights Entertainments" hold their place among the books which fascinate by conducting young minds to the unreal realms of wonder-land. What if science were to write her thousand and one nights of entertainment which might be instruction and wisdom too!

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[*] Elizabeth Browning: "Aurora Leigh."

We meet with a pleasing illustration of this allegoric power in delineating natural things in M. Mace's description of the blood: thus he says, "Every large country-house has a steward, or bailiff; our body has also its steward. But what a steward! how active he is! how he turns his attention to everything! Why, the stewards of great lords are nothing to him! He comes and goes; he is everywhere at once, and that, not by a mere figure of speech, as when you speak of a very active man; in this case the 'everywhere at once' is a reality. Our steward has everything, not in his store-room, but, which is far better, in his pockets, and he empties them, by degrees, as he goes along,—never making a wrong estimate of what he ought to give out, never stopping, but coming back for fresh supplies, without ever growing weary, every minute of the day and of the night. Ah, if you knew how many workmen he has under his control, who work without ever knocking off; who come to him, each one of them, for something quite different from the rest, and who never play over their work,—oh, dear, no! No use saying to them, 'Stop a minute'; they don't know what it is to stop. You must keep on supplying, supplying, supplying to the end of the chapter. This wonderful steward is called 'the Blood.' One fine morning he came upon the rudiments of teeth in your head, asking to be put in a condition to work, and straightway he began with them his distribution of stores. They wanted lime and phospnorus; he took lime and phosphorus out of his pockets. Now, when your teeth began to shoot you know very well you never ate lime and phosphorus, for nothing but milk ever entered your mouth." Now this is surely very interesting, instructive, and suggestive, and in the same allegorical spirit, another interesting work teaches the elements of physiology,—the nervous and powerfully-written "Letters to Brother John."

In this spirit many of even our most eminent and illustrious scientists have aimed to give every one some grounding in science, and it is quite certain that such a method of bringing out the teaching of physics in the home, lesson-room, or the grammar school can only be admirable. Even Sir John Herschel shows the teacher how to make the very highest philosophy entertaining, in his invaluable "Discourses on Natural Philosophy," and his "Familiar Lectures on Scientific Subjects." Thus the great potential speculations, like the modern theories of heat, and its relation to the generation of every kind of force, are like an entrance upon an infinite forest of thought amidst creative essences and forms. This great teacher very truly remarks, "That only is little which cannot rise to great conceptions"; and one of the highest marks of an extended civilization is the creation of wants and desires higher than material gratification, and the desire of extending knowledge *for the sake of knowing;* the craving after a larger grasp, a clearer insight, a more complete conception in all its relations of the wondrous universe of which we form a part;—and Sir John in his simple, lucid, and beautiful lecture on "Celestial Weighings and Measurings," furnishes at once one of the most singular instances, both of the desire and of its gratification; the solution of that wondrous enigma, the distance of the stars, the problem upon which astronomers with their glasses have exercised themselves with such almost miraculous, and certainly exquisite, delicacy and refinement. The achievements of trigonometry, or the process of triangulation, must seem to ordinary readers almost as wonderful as to the savage seemed the "Talking Chip," as he called it,—the two or three scratches upon a bit of shaving which brought to the missionary, from a distance of miles, the tools and appliances he needed for the carrying on of the building of his boat; and the circumference of the wonders, and marvelous enchantments of science within the last few years has almost infinitely extended. Sensational excitement and scientific discovery can never be regarded exactly as twins, but there is a marvel felt in the mind which even tingles along the nerves and through the blood, and produces upon the spirit even what may be called a sensation of rapture and wonder; and, if less human than some of the miserable plots and counterplots which go to make up man's conception of romance, yet wing the spirit with a sense of the wonderfulness of Nature's ways more wildly and marvelously romantic than anything which even Dante could dream or Doré describe. The old fairy story tells how, when the king's three sons wished to obtain the hand of a certain lovely princess, and were told that he should have it who brought home the most wonderful object, one brought a flying carpet, and another brought the crystal which showed what a friend was doing at a distance merely by looking into it; and the third brought the wonderful apple, by which the most exquisite sufferings were alleviated merely through inhaling its fragrance; but, to the performances of science, these fairy stories are a kind of prophecy,—a "seeing through a glass, darkly." They are mere trifles to what science has done. Borne on the wings of steam, you may travel thousands of miles across a continent in a few days, and nearly a thousand miles in the course of twenty-four hours. With nearly the same ease with which you could convey a whisper to a friend sitting in the same room, you may send a message six or eight thousand miles away. Science will take you in its arms and wrap you in slumber, in a dream of pleasant sensations, while a surgeon's knife is either taking your leg off or submitting you to some of the ghastly horrors we associate with the knife.

"There are no more Alps," said a sovereign once, when his armies had crossed them; but, almost at the touch of science, we may exclaim, There is no more time, nor space! When Cartin was among the red Indians they had a decided objection to his taking their likenesses; they could not understand how that could be without his taking their souls away from them, although one of them did wax very wroth when his profile was taken, because the artist had, in his instance, taken half a soul and left half a soul behind. But science has a way of catching a soul as it flies through the air. Before you there is nothing, — no shadow, mere and entirely empty space, — a little wizardry, and lo! there you are! the very transcript and soul of yourself. The glasses of science are the true magic mirrors. Upon an inconceivably small disc you drop a point, say of nitrate of silver, not larger than a pin's head, and lo! as you look through the magic glass, you see it growing, growing! a magic tree, the gorgeous glories of whose jewelry far outshine the splendors of those fabled trees of blazing jewels of which we read in the Eastern tale. Every little grain, every drop of water, every thread of hair is alive with wonders, and a mere grain of mud exhibits splendors before which the blaze of diamonds, in the regalias of the old majesties of Europe, become dim and pale. Glancing through a microscope of extraordinary power at a diatom, a friend said to me, after all its glories had gleamed upon our astonished vision, rich as a casket of diamonds, "You see, there's nothing in anything." "No," said I, "far other is the lesson this bit of glass has given to me; it is rather that there is something in everything." And thus, from the infinitely minute play-ground of science, on the microscope, to revert back again to the infinitely large on the telescope, we return again to the "Celestial Weighings and Measurings," which Sir John Herschel has taught us in some slight measure to simplify. The grand discovery of the planet Neptune, by calculations of Lévérrier and Adams, simultaneously proceeding, seems almost to yield, in its splendor, to the discoveries more recently made in the neighborhood of that great,—we must not call it landmark,—say lighthouse of astronomers, the star Sirius; that "superb star," as Herschel well designates it, whose light which it takes twenty of our years to transmit to us, and whose glories it would take four hundred such suns as ours to kindle, has been for a long time one of the most splendid marks of astronomers' observation. Certain undulations of regular recurrence perceived in it, and which could not be ascribed to parallax, were, by anticipation, ascribed to the attraction of an unseen companion; and in January, 1863, Mr. Allan Clarke, of New York, discovered in its neighborhood a minute star which had eluded all previous observation. Its real existence has long been verified, and there is every reason to regard this as the unseen companion, the presence of whose mild power awakened the mystic palpitations in the fiery planet; and calculations have fixed the distance of the dim and remote stranger at forty-seven times the distance of the sun from the earth. What an illustration does this furnish of those refined celestial measurements to which we have referred!

These celestial weighings and measurings remind us again of what Herschel says in his paper on the Sun, perhaps the most sparkling paper ever written, in simple language, on that immense and distant orb. This great writer and accomplished scientist, says he is compelled to make "statements so erroneous in all their proportions that I dare say, before I have done, some of my hearers will almost think me mad, or intending to palm upon them a string of rhodomontades like some of the mythical stories of the Hindoos,"[*] thus, speaking of the lighting and heating part performed by the sun, he tells us that, if we take all the planets together, great and small, the light and heat thus received is only one 227-millionth parth of the whole quantity thrown out by the sun; all the rest escapes into free space, and is lost among the stars, or does there some other work that we know nothing about. Of the same fraction, thus utilized in our system, the earth takes for its share only one-tenth part, or less than one 2,000-millionth part of the whole. Is it possible to deal with such immense conditions and statements as these so as, in any way, to introduce them into the play-ground of science? To these lost sunbeams, and the immense waste their dissipation seems to imply, it is a principle of physical knowledge not merely to define or describe the known, but to state reasonable expectations regarding the unknown.[†] There is no question, in our day, more eagerly discussed, nor one which lies closer to the root of all physical knowledge, than that which inquires whether force can be destroyed or not; and we are, probably, to find amidst those lost sunbeams and enormous waste, or what appears to us waste, the excessive, exorbitant prodigality of diffusion of the sun's light and heat. To quote the strong language of Herschel, it is probable that we are to find, in this "waste," the means for recuperating the energies of our world, and of our system; but without attempting, on the play-ground, to discover the source and fountain of physical force, or to understand, so as to explain by parable and allegory to the young mind, how it is that the highest law in physical science which our faculties permit us to perceive is the conservation of force, we may yet linger on the play-ground, both pleasingly and profitably, among the sunbeams. Thus, the pleasant novelist, whom we quoted in the earliest part of this essay, in entering upon the mysteries of tree-talk, represents the tutor, Hugh Sutherland, as showing to his young pupil how trees are made;—let us read the passage together:

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[*] Familiar Lectures on Scientific Subjects, by Sir John F. W. Herschel, Bart., K.H., etc.

[†] Faraday.

"Hugh read for an hour, and then made Harry put on his cloak, notwithstanding the rain, which fell in a slow, thoughtful, spring shower. Taking the boy again on his back, he carried him into the woods. There he told him how the drops of wet sank into the ground, and then went running about through it in every direction looking for seeds, which were all thirsty little things that wanted to grow, and could not till a drop came and gave them drink; and he told him how the rain-drops were made in the skies, and then came down, like millions of angels, to do what they were told in the dark earth. The good drops went into all the cellars and dungeons of the earth to let out the imprisoned flowers. And he told him how the seeds, when they had drank the rain-drops, wanted another kind of drink next which was mnch thinner, and much stronger, but could not do them any good till they had drank the rain first."

"What is that?" said Harry. "I feel as if your were reading out of the Bible, Mr. Sutherland."

"It is the sunlight," answered the tutor. "When a seed has drank of this water, and is not thirsty any more, it wants to breathe next, and then the sun sends a long, small finger of fire down into the grave where the seed is lying, and it touches the seed, and something inside the seed begins to move instantly, and to grow bigger and bigger, till it sends two green blades out of it into the earth, and through the earth into the air; and then it sends roots down into the earth; and the roots keep drinking water, and the leaves keep breathing the air, and the sun keeps them alive and busy; and so a great tree grows up, and God looks at it and says it is good."

"Then they are really living things?" said Harry.

"Certainly."

"Thank you, Mr. Sutherland. I don't think I shall dislike rain so much any more."

Now this, again, is science on the play-ground, and here rain-drops and sunbeams are humanized, and made to play the part of kind and benevolent spirits, and the young pupil is informed, and the imagination is in no particular deceived. And why should not all, or almost all, the hard facts of science be compelled into such a service of beautiful and instructive personification? This is what is meant by pursuing the synthetic, rather than the analytic method, and showing the wonders of nature, not so much by taking things to pieces, as by exhibiting the Cosmos, the whole; thus investing, in earliest instructions in science, the poetry without the experiment, — let that come later when curiosity shall have been fortified by imagination and faith.

Or suppose we were to determine to make clear to the mind of the class the phenomena of sound, and the wonders of the human ear; to attempt to make the little students understand the rhythym which seems to run along, even through mute and material nature, and to manifest itself in the singular relation and adaptation of the organ of hearing. We often speak of the wonders of the human eye, but the marvels of the ear are still more unsuspected,—for the ear is not so much a musical instrument, it is a whole orchestra. Imagine a lute of three thousand strings, — microscopic strings, — exquisite, finely-elastic fibres; it seems even much more natural to speak of it as an orchestra, although so much larger than that we may have seen in Music Hall in Boston, or in the Crystal Palace in England; and every one of those fibres,—each of those three thousand little people, each of those microscopic strings analyses every motion of the external air, and reveals the constituents of which it is composed, even as the violinist tries the chords of his violin. These discoveries were made by the Marchese Corti, but they have been made popular by Professor Tyndall in his very entertaining and delightful lectures on Sound.* If anything could astonish us among the marvelous discoveries of science, or the amazing mysteries of the human frame, then it might well astonish us to learn that, within the ears of men, and without their knowledge or contrivance, this lute has performed for ages, accepting the music of the eternal world, and rendering it fit for the reception by the brain, or the sense of man — how poorly and feebly do the multitudes of arch "*Voituriers*" in a concert represent these singular *otolithes*, — the term which M. Corti gave to those magic musicians which he discovered, and which, in the science of sound, and the human ear, are appropriately called *Corti's organ*. So this nervous energy and capacity for sound is in everything, and exists everywhere. We often say nature is a mighty organ: God fills it and speaks through it; nature is the instrument of God, and she seems only to have been created, and to exist, for the purposes of the soul. Thus, as Coleridge says:

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* Sound: a Course of Eight Lectures delivered at the Royal Institution of Great Britain, by John Tyndall, LL.D., F.R.S.

> "And what if all of animated nature
> Be but organized harps, diversely framed,
> That tremble into thought, as o'er them sweeps,
> Plastic and vast, one intellectual breeze,
> At once the soul of each, and God of all."

This, of course, is the language of poetry; but how shall we illustrate the extent to which it is also real, simply real? Every tree is a fiber, and has a separate tone in its heart; willow, oak, elm, and poplar, — they have each their own peculiar sound. This is not mere sentiment; — perhaps the reader may have heard of Goti-Kow, a Russian peasant, who made a wonderful instrument which fascinated many of the cities, courts, and nations of Europe; he made his instrument from the reeds of trees which grew around his home; — it made him very famous, and raised him to a place of considerable eminence in the service of the Emperor of Austria of that day. Before Goti-kow stood a mere wooden table, and upon it his rude wooden instrument. At first the auditor heard only a sound, as of wood; still, at last, the wonderful instrument, beneath the touch of the genius of the peasant, is described as rising, above all other sounds, clear, warbling like a nightingale,—rich, liquid, strong, like a sky-lark in the heavens, and all who heard it listened with delight and wonder that thus trees could be made to speak. "Such harmony is in immortal souls."

Why would we introduce such stories as these upon the playground of science? To keep the sense of wonder healthfully and reverently alive in the mind, — to produce quite early a something that shall say, "Hush! did you not hear it?" Take that mystery of mysteries, for instance, — electricity, which really seems almost as insolvable a secret as the very soul of man itself. Arago tells how, once, a cobler, or shoemaker, was sitting at his stall and working away with right good will while a storm was going on; the lightning suddenly entered his shop; with courteous graciousness it passed him by, but, in one second of time, it transmuted every iron thing in his shop; it magnetized all his iron tools. We may imagine the dismay of the poor fellow; it was as if the black magician of the old story, the very sooty one himself, had entered. The hammer, pincers, and awl were alike bewitched, and attracted all the needles, pins, tacks, nails, and sparables; there they were, all firmly adhering to the larger tools. Surely we cannot wonder that the poor fellow thought that one or the other of two things had happened; either that everything in his shop was delivered over to the devil, or else that he was dreaming it all. In England, in Wakefield, a merchant had placed a number of knives, forks, and iron tools, intending to pack them up, and send them away to one of the colonies. In came the lightning; in a second the box was opened, and the articles all spread upon the floor, and when they were picked up it was found that every article was magnetized. Some subtle property had been imparted to each, and each thing might have served the purpose of a mariner's compass; all had been affected by the subtle current. What is this delicate and most subtle power which can exhibit so strange a behavior? Think of it melting a pair of bracelets on a lady's wrist, and leaving the wrist altogether untouched: talk of delicate attentions after that! Jerome Cardan, however, tells of eight reapers, all eating their dinner under an oak-tree. By one flash of lightning they were all struck; yet not one was disturbed; they sat still, — they were all dead, — but there they they sat, all still! When discovered, one was still holding his glass in his hand, another in the act of putting a piece of bread into his mouth, a third was stretching his hand toward a dish. In an instant death had come down upon them; life was suppressed so instantaneously that all the muscles continued rigidly unmoved. The illusion, so much like life, would have been complete only the second of death had completely discolored their bodies, so that they appeared like statues sculptured out in black marble. The wonderful story was for a long time disbelieved, but the catastrophy has been repeated since, and in our own day, in England. Ten reapers were similarly struck in a storm while taking shelter under a hedge. What is this mysterious power which so awfully and yet so gently takes the soul away? When we see animals, or men, cease moving, thinking, living, thus suddenly without any appreciable change in their appearance, or in the mechanism of the organization, it suggests, says M. Foneville, the image of a cage, the doors still closed, no damage done to a single wire, and yet the inhabitant gone, the bird flown. However did the bird get out of the cage? Not the slightest trace of any wound; no scar, no touch, burn, or contusion; no hint of the way in which the mysterious bird escaped from its confinement, and yet gone!

To what a marvelous degree might these stories be extended! for the workshop of science is all around us, and especially is this true in all the astonishing agencies of electricity. Just as an electrical machine may be constantly rubbing together glass and silk,—just as if we rub a stick of sealing-wax or a glass tube with a warm silk-handkerchief, so the air is always rubbing over the face of the earth with greater or less rapidity. Nature is a great electrical machine. As man guards his roof from the destructive action of lightning dashing to the earth, crashing, rending, burning on its way, by erecting the lightning-rod, whose innocuous point quickly drains the clouds, or, failing to do this, receives the charge and bears it harmlessiy to the earth, so there is a harmless conductor in every pointed leaf, in every twig, in every blade of grass. It is said that a common blade of grass, pointed with nature's exquisite workmanship, is three times as effectual as the finest cambric-needle, and a single twig is far more efficient than the metallic points of the best constructed rod. What, then, must be the agency of a single forest in disarming the forces of the storm of their horrors! While the same Almighty hand has made raindrops and snowflakes to be conductors, bridges for the lightning in the clouds, as it is written in Job, "God looketh to the ends of the earth, and seeth under the whole heavens, to make a way for the lightning and the thunder."

Yes, indeed, the workshop of science is everywhere around us; its materials and tools are everywhere universally present, alike in the objects of art and the yet more abounding objects of nature. It is only because as wonder ceases, novelty expires, that things in themselves awaken no interest. We must find them in the play-ground, that we may make them interesting and charming. Again we say, universally, things in themselves wonderful as fairy-stories lie around us. A pair of spectacles, which the old grandmother takes up and puts upon her venerable nose, and without which she could not see to read,—they are a very common thing, but they surely might be a satisfaction and a suggestion to much youthful inquisitiveness. But it is more important to remark that such science leads, by a succession of easy steps and platforms, to a true *sacro monte;* and did men and women know what visions of things not seen by those who are not pilgrims thither, may be beheld from its slopes, many more pilgrim feet would tread along its not inaccessible, although sometimes steep, acclivities; for it is in science that we possess one of the most assured and certain means of overcoming the skeptic who tells us that he must either handle a thing, or see it, before he can believe in it. In fact it is science which shows us what a little thought had prepared us to expect; a whole universe of invisible things and powers. It is science which suggests to us how things not seen may yet be known. Man is ordinarily compelled to believe in what he cannot see; he can only see effects, not causes, nor things in themselves. It has been very truly said that the world of sight in which we live is a sort of central point, or table-land, half way between the telescope and the microscope. A very large portion of what we call the material world is invisible, composed of things not seen. Heat and steam are invisible. We can feel a ray, and we can see vapor,—that is an invisible thing rendered visible by condensation from contact with cold air, — but who ever saw the mighty giant at home, in the boiler. This great moving power of the world, this thing which drives a vessel of three thousand tons, against wind and tide, across the Atlantic; or hammers a twenty-ton of iron into shape as easily as you would mould a pellet of bread between your fingers, — that five-hundred or thousand horse-power nobody has ever beheld. The colors of the solar ray are, until made to play upon the prism, invisible; and even then there is reason to believe that color, never detected, is yet lying among the visible and colored rays in that space which appears to be empty; that rays without color, and the forces of the magnet, and of the electric currents are invisible; so that we are conducted to the goodness of "an unseen hand, whence flows all this invisible harmony": this visible harmony, too, the screen of the natural world, lighting up its most beautiful and created marvels in the human soul. Such are some of the assurance which science has given us. Surely such views as these ought not to minister to skepticism. Trees rise in huge and immense forests, but, whether in a slim branch or whether in an Ardennes, or in a Fontainbleau, or in the mighty forests, where the monarch of the woods rises to the height of from two to three hundred feet, — the great timber-builder for every one such magnificent temple, spire, or turret, — is that carbonic acid, the invisible tenant of the air, to whom they all owe their structure, and every coal-bed in existence. Or even, as those long miles of tubes stretching through our cities and towns, filled apparently with nothing,—nothing apparently perceptible to the eye,—and this *nothing* to burst into harmoniousness!—a wondrous candle,—a light to burn without a wick. Observations, we say, like these become a true *sacro monte*, — a sacred hill. And thus, as along the noble European Rhine, the traveler pleasingly remarks the castellated towers of the remote ages once frowning grimly over the waters, with their vast ramparts and mysterious manchi-colations, but now only objects of enjoyment and recreation, — their dark histories turned into pleasant

stories and fireside tales, and the fields all around them laughing w
the vintage of the grape and the corn; so, as the great Time ri
rolls, on either side rise the battlemented turrets of the great scien
which it seemed once so hard to scale; but they have ceased tl
frowning, even may be entered, and will furnish to the pilgrim
freshment and recreation, by which, and in which, may be built
the noblest part of the immortal being. Thus, in pursuing s
noble sports and divine recreations, we may well, too, bear it
pleasing consolation that,—

"A thing of beauty is a joy forever;
Its loveliness increases; it will never
Pass into nothingness, but still will keep
A bower quiet for us, and we sleep
Full of sweet dreams, and health, and quiet breathing.
Therefore, on every morrow are we wreathing
A flowery band to lead us from the earth,
Spite of despondence, of the inhuman dearth
Of noble natures, of the gloomy days,
Of all th' unhealthy and o'erdarkened ways
Made for our searching,—yea, in spite of all
Some shape of beauty moves away the pall
From our dark spirits. Such the sun, and moon,
Trees, old and young, spreading a shady boon
For simple sheep; and such the daffodils,
With the dear woods they live in, and the rills,
An endless fountain of immortal drink,
Pouring upon us from the heavens' brink."

MANUAL EDUCATION IN PUBLIC SCHOOLS.

BY L. H. MARVEL.

IN the preceding number of EDUCATION testimony was presented and argument advanced to indicate the strong popular sentiment in favor of some form of manual training in the public schools. The grounds assumed were, (1) that pupils may be prepared to earn a living more quickly and more readily upon leaving the common school; (2) that the dignity and importance of manual labor may be appreciated more highly, since pupils will learn that study and preparation are required for proficiency in the trades; (3) that training of the body may not be neglected while the intellect is developed.

The instruction in technical schools has proved to be valuable in each of the directions just indicated. It is admitted that the manual training of the kindergarten is a potent factor in securing mental discipline. Some similar instruction should be afforded in the common schools. But how to create a system of industrial education so efficient as to commend itself to practical educators, so simple that teachers of average ability can carry out its provisions, and so inexpensive as not to become an excessive burden to tax-payers, is a problem as yet unsolved, and scarcely attempted.

Since manual training has been successfully introduced in classes of pupils below and above the grade of the common schools, the question naturally arises, Why has so little been attempted in the regular grades of public schools attended by pupils from seven to six teen years of age?

In Massachusetts there is legislative enactment permitting towns and city councils to appropriate money for industrial education, but the local authorities have been slow to avail themselves of its provisions. The first important movement tending to the development of a comprehensive scheme for manual training was the act passed in 1870, by which drawing was required to be taught in all the public schools. But it has taken a long time to develop in the public mind an appreciation of the kind of drawing required. The idea that drawing is simply related to fine-art work is so general, and its relation to industrial labor is so little understood, that it has required much demonstration to make clear its practical bearing in industrial education. It is now becoming evident, however, that widespread instruction in drawing must precede any broad development of industrial education; for drawing is the fundamental language by which thought or ideas are conveyed in the industrial arts. As all artisans perform their work in accordance with certain plans, it is evident that a knowledge of how to construct and how to interpret these plans becomes a matter of prime necessity to all artisans. It is as essential that the builder shall know how to interpret the plans, or working-drawings, presented for his inspection as that he shall be able to read the specifications which accompany them, or compute accurately the expense of material to be used. To him drawing is of equal value with reading, writing, and arithmetic; and the same is true of the mason, machinist, cabinet-maker, etc.

The system of instruction in drawing which has been adopted generally in this State, and may be noted particularly in the important cities like Boston, Worcester, Lawrence, and Lowell, has for one of its main objects the development of a knowledge of drawing as applied in constructive industry, or in industrial construction. It has been the mistake of nearly all instruction in drawing, until quite recently, that this feature has been almost, if not entirely, ignored. Hence pictorial drawing, or the drawing of objects, and the practice of designing in the schools, have received undue consideration. The attention now being paid to the subject of constructive-drawing will soon change the whole character of art-instruction in our public schools. Not only will it serve to make the study of drawing eminently a practical study; it will also tend to develop the purely æsthetic features which belong to the subjects of object-drawing and design much more educationally, and much more broadly, than has been found possible hitherto.

Instruction in drawing, therefore, when proper attention is paid to the feature of industrial construction, becomes a fundamental part of general industrial education; but it should be borne in mind that instruction in drawing which is limited to object-drawing and design, has but a partial or incidental bearing upon general industrial education.

A special illustration of the intimate relation of drawing and construction is presented, in plates III. and IV., so clearly that no one can fail to apprehend the character and the educational, as well as the practical, value of the work described.

With the exception of instruction in sewing, provision for which is made in a few schools, no other line of manual training has been established at public expense in the common schools. The principal reason for this neglect is, that so few persons fully apprehend the scope and purpose of the instruction proposed. There is a very proper objection to making apprentices of the pupils, turning the schools into work-shops, and educating the children for special trades. Not realizing that the end sought is training and not a trade, and not understanding that facility in manipulations common to all artisans may be secured without special apprenticeship at some particular trade, many persons have attempted to criticise the scheme of manual instruction while totally ignorant of the fundamental principles of the plans which its advocates suggest. It is by no means intended to make blacksmiths of these, carpenters of those, stone-cutters, machinists, printers, etc., of others, but to train all alike in a few manual operations common to all the trades, in order that there may be a normal development of the body as well as of the brain. The public schools are by no means designed to teach special trades ; neither are they intended for special professional training. But they should furnish instruction as directly adapted to the wants of prospective artisans as to the needs of those pupils who propose to enter the learned professions. This has not yet been done. But those educators who have given the subject the most careful attention, and have satisfied themselves by experiment and observation of the truth of their statements, claim that there are certain fundamental operations, — *e. g.*, hammering, — essential to all trades, and of value to the several artisans, just as drawing has been shown to be valuable to many classes of workmen. Pupils over twelve years of age are generally large enough and strong enough to perform many of the manipulations which are required, and are sufficiently mature to understand the directions given. Without teaching a trade, the elements of the trades may be mastered, and the graduates of our public schools enabled to go out into the world the better fitted to take up ordinary lines of work on account of their school-training,

Professor C. O. Thompson, who does not favor manual education in elementary schools, emphatically states that, " Speaking now of pure manual dexterity, without any connection with invention or with auxiliary mechanism, I affirm, unhesitatingly, that the highest degree of this skill has been attained by attentive, unremitting, prolonged, concentrated, and enthusiastic practice of a few mechanical motions." This is said respecting the skill of the artisans in India, which excites the envy and admiration of the missionaries sent out to educate them.

Professor Felix Adler claims that, " There are certain mental operations that underlie manual operations. These children should be taught so that their manual operations may become transparent to the mental operations that underlie them. In modern times capable men have discovered that there is such a thing as a theory of tools; that tools can be classified and grouped, and that a child's mind can be led along in orderly succession in learning them. It has been shown that there are three great types of tools, involving three great principles by which, and the combination of these principles, every kind of tools can be explained. There are reasons underlying manipulation; why an axe should be wielded in a particular way; why an axe splits, and why a knife cuts wood. The double-cutting edge of a plane exhibits a rational contrivance, and has an interesting explanation of its own. The children ought to be taught these reasons, and made to understand their explanation, even while they use the saw and wield the axe, strike with the hammer and move to and fro the plane."

These gentlemen, the former of whom does not approve the adoption of manual training as a portion of the regular *curriculum* of common schools, and the latter of whom is one of its most earnest advocates, substantially agree that the practice of a few fundamental mechanical motions is of vital importance in securing manual dexterity. Practice of using the left hand as well as the right would be of great practical benefit. While every one cannot become perfectly ambidexter, there is no valid reason why, by careful training, both hands may not be rendered nearly equal in strength, skill, and usefulness.

By special gymnastic exercises, or otherwise, these fundamental motions should be practiced regularly and daily in the public schools, (1) because of their value as a means of physical development; (2) because of their wage-earning value in after-life; (3) because no other place affords the facilities of the school-room for regular, systematic, enthusiastic practice.

Although, with the exception of instruction in drawing and in sewing in a few schools, the public schools have not attempted to bridge the chasm from the kindergarten to the high school by any form of manual training, a private enterprise (the Workingmen's School, 1521 Broadway, N. Y.) has instituted a course of instruction thus broadly outlined by Professor Felix Adler, director of the school:

Now, furthermore: I believe that work-education can be given to the youngest children, in the lowest classes of the school. And here is perhaps the main point, in which the importance of what we consider to be our new departure in education becomes apparent. For industrial education has long ago been given in many countries of the world to older children, boys of fifteen or sixteen years of age; but industrial education has never, to our knowledge, been introduced in the lower classes of schools; has never been combined *organically with the whole scheme of education*, and been made to support and coalesce with all the other studies of the child.

Work instruction is not a something outside the regular instruction; it is an organic part of the regular instruction. It becomes a means of teaching mathematics, for instance, more thoroughly, causing the pupils to work out mathematical truths with their very hands; it becomes the means of teaching natural history more effectively; it is worked into inseparable connection with the entire scheme of the scholar's mental and moral development. It becomes the means of making the hand a wise and cunning hand by putting more brain into it. But, on the other hand, it also makes the brain a clear and vigorous and enlightened brain, by giving it the salutary corrective of the demonstrations of the hand. And so the system of work education, considered as an advance in education generally, has a value of its own.

And here it may become apparent why our school is not an industrial school in the sense which commonly attaches to that name. We shun the name, and call ours the Workingman's School, because we wish to keep away from us the ideas that are associated so frequently with the name of industrial schools. We do not propose to give our pupils an aptitude for any particular trade; we do not propose to make them tailors, or shoemakers, or printers. We would consider that a retrogade step rather than a step in advance, if we were to prevent these young lads and little girls from spending even a few years in gaining knowledge, without any reference to the pitiable necessities of their after-lives; we do not propose to yoke their young souls, before they have had time to expand at all, into the harness of trade merely for the sake of getting their bread afterward. We propose to give them that which will secure them bread thereafter, and many of the higher treasures of human existence, we hope, besides; we propose to give them a broad and generous education; we propose to educate our pupils so that they shall become not working drudges, not working slaves in the treadmill of labor; but so, that while they remain *working*men and *working*women, they may also be, in the best and noblest sense, working*men* and working*women*.

Such a school, then, we would build up, whose fundamental purpose may be expressed in the words, *the emancipation of the working classes through their work.* And, if we cannot find competent teachers here, why should we wait till American universities will give us what we want; can we not call, if we are supported in this undertaking, the most competent teachers from abroad, and so transplant the richest results of European experience to our own soil, though always so modifying the matter and the method of instruction as to suit the altered conditions of American life?

Mr. Bamberger, the principal, presents the following detailed statement of the special features of their scheme of manual training:

In the school proper, then, we seek to bridge over the interval lying between the preparatory kindergarten training and the specialized instruction of the technical school, utilizing the school-age itself for the development ot industrial ability. This, however, is only one characteristic feature of our institution. The other, and the capital one, is, that we seek to combine industrial instruction organically with the ordinary branches of instruction, thus using it, not only for the material purpose of creating skill, but also ideally as a factor of mind-education. To our knowledge, such an application of work-instruction has nowhere, as yet, been attempted, either abroad or in this country.

In practically attacking our problem, however, we were compelled to meet great difficulties. The choice of material for the children's work presented a first difficulty.

The softest wood is too hard for the delicate fingers of children seven years old, and, moreover, requires the use of heavy and sharp tools, such as are not willingly intrusted to little ones at so tender an age. We finally decided to use clay. Clay, after it has been prepared in a special way for this purpose, is easy to cut and manipulate, does not stick to the tool, and is not brittle enough to break and crumble. This proved entirely successful.

A complete series of patterns had to be invented which might be worked by young pupils out of this material. Thirty such patterns have been produced, and in them we have the system of elementary industrial exercises, with which we begin. These patterns are described in our illustrations.

Let us now look at our little workmen at their work.

By means of a simple arrangement the school-desks are converted into work-tables. Every child is supplied with a set of cheap and suitable tools. The work-lessons occur in the afternoon on two days of the week, and last two hours each time. The pupils are obliged to behave as quietly during work as in the other school-hours! only just so much whispering is permitted as is necessary for the requesting and rendering of necessary assistance. We endeavor to give the school-room the air of a well-conducted work-shop. Each pupil-workman has his own place and tools, for which he is held responsible so far as possible. All begin work simultaneously, and stop at the same moment.

We now come to the work itself. Plates of clay of irregular outline, ten to fifteen inches in length and breadth, and about one to one-and-a-half inches thick, are given the pupils.

The first lesson consists in the construction of a square from such a plate. The children place their rulers across one side of it, and with their pointed chisels draw a line along the outer edge. This is not so easily done as one might think. The children must practice the following precautions: they must apply the ruler correctly. and hold it firmly with the left hand so that it cannot slip, and produce a crooked instead of a straight line; they must also select the proper tool, and hold it lightly and skillfully, if the straight line is really to be faultless. Finally, from the outset, they must learn to estimate the amount of their material, and to avoid wastefulness. To this end they are shown how to move the ruler toward the edge as far as possible, so that none but useless pieces, or, at least, few others, may fall away. When this is done they take up their chisels and smooth on the cut-side according to rule, — that is to say, they learn to wield their tool after the fashion of the master-workman, in the manner in which it most speedily and accurately does its work. If they have done this the cut will show the required perpendicular direction, an impossibility, if the work has been performed incorrectly or awkwardly. Each worker thereupon applies his ruler to the section, and convinces himself that it really is accurate. The side is then completed.

We come to the second part of the work: the square is applied to the plate of clay; the second adjacent side is ruled and then chiselled off like the first. Then the children learn the use of a new tool,—the carpenter's square; they learn the signification of a right angle, and the eye soon grows so accustomed to this new form that it detects the slightest deviation from it. Not all, indeed only a few, among the pupils are able to do this work correctly at first; but after many trials and repeated corrections the little workman gradually becomes clearly aware of what is required, and how the squares of clay look when they have been marked off perfectly. Now, proceeding from a given point, equal portions are taken away on either side. Here the child learns to know and use the rule, and becomes acquainted with the simplest lineal measure. The two remaining sides are constructed in like manner to the first two, and the square is then so far finished.

We now give the class a number of exercises on the square by means of which all the properties of this fundamental geometrical figure are rendered more and more familiar to the pupils. Thus it becomes clear that the square has four sides of equal length, and that when one side is known, the length of the others is at once known also. It is further obvious that the square possesses four right angles. Finally, by applying the carpenter's square to all the sides of the clay square successively, it is seen that the opposite sides are equally distant from each other at all points: hence, that they are parallel.

Further exercises: the children are told to lay their rulers diagonally across the squares and draw a line upon the clay. They measure this line, and are asked, Is it longer or shorter than any one side? Then another diagonal line is drawn, and also measured. How long is this? we ask. Surprised and in joyous excitement they discover that the lines are perfectly equal. They are then told that these lines which they have drawn are the diagonals, and shown that *they have themselves proved the diagonal lines in a square to be equal to each other.* This was not taught them; they have found it out for themselves, and will never forget it. The little ones quickly discover that only two diagonals can be drawn in one square, and that these intersect each other at a certain point. They are now directed to measure again, and they find that this point and no other is equally distant from the corners, and that the diagonals cut each other into halves. By application of the carpenter's square they now find that again there are four right angles about this point (centre). The sides of the square are likewise divided into halves, and the central points found. The lines that connect the points must pass through the central point of the square.

The exercises on the square are continued until the larger number of pupils can make one without assistance, and are perfectly familiar with its properties and relations. It is a matter of course that the squares are made in various sizes, according to a specified measure, so that the childred may be thoroughly exercised in lineal measure.

The undersigned, after having taught the lowest class of the school during a whole month, — *i. e.*, during sixteen work-hours, — had the pleasure of seeing that nearly all his pupils were able to handle the clay-square according to his expectations. Although the exercises are continually made more difficult, it is yet plain that they will be mastered in shorter and shorter time, in proportion as the hands and eyes of the children daily grow more practiced, and what has already been taught comes up in review at almost every fresh stage of acquirement.

Lesson No. 2 requires the construction of a rectangle. This figure is first accurately described, and contrasted with the square already studied. The quickness and correctness with which several of the pupils immediately recognized the essential differences between square and rectangle were a great satisfaction to me. They noted that the sides are equal in pairs (parallels); that the diagonals are equal to each other, but do not intersect at right angles, etc., etc.

New facts and difficulties are successfully encountered. Squares and rectangles occur in the most various combinations; these numbers are especially adapted for exercising the hand. When the drawing has been made on the plate, and by means of the indicated aid-lines cut away to about half the plate's thickness, the shaded parts are carved out, and the figure then stands out in relief. See plate I., (1) and (2).

No. 3 introduces a new form, the triangle, which offers no difficulties to the pupil. Preliminary practice may be obtained by letting the pupils divide a square or rectangle diagonally once or twice, by which means either two or four equal triangles will be produced.

No. 4 represents the three forms, square, rectangle, and triangle, in pleasing combination.

A new series of lessons begins with No. 5. The pupil now for the first time makes use of the compass. A regular hexagon is marked off by means of the radius on the circumference of a circle, and then inscribed within it. It is not necessary to dwell on the gain in mathematical knowledge which is here obtained, and all the useful and noteworthy facts that may here be shown. In the illustration itself it is indicated how the central point of the square and rectangle is to be found.

It is understood that the work of the second school year shall begin with No. 5. This is followed by other numbers, representing strictly mathematical forms, (6) and plate II., (7); a mathematical construction, the dividing of a straight line into any number of equal parts, (8); and objects of every-day life, in which all the forms hitherto taught appear in the most various combinations, (9), (10), (11), and (12).

When the children reach the age of nine, and have already worked for two years, it may be assumed that they possess enough strength and skill to work in wood, and to manage a small saw. It may here be remarked that this has been proved by the experience of industrial schools in Germany, especially in Saxe Weimar.

Articles constructed of unbarked wood make a favorable impression when well executed, and their fabrication does not require an unusual degree of skill nor elaborate tools. As regards the latter, a saw, a knife, hammer and nails suffice; for the smaller articles, a little glue is requisite. The materials may be maple, hawthorn, hazel, or similar woods, which are cheap, handy, easy of transportation, and can be manipulated in the school-room. These woods are procured in rods of various length, and from one-quarter to one-and-a-half inches in diameter. The articles constructed are: photograph frames, match-boxes, saving-boxes, four-footed garden furniture, and a particular three-footed sort.

When the pupil has attained his eleventh year, and enters on his fifth school year, he is intrusted with a scroll-saw to work in wood, and later on, also, in zinc. This kind of work is in itself quite easy, except in its artistic finish, but very important. Here, for the first time, the pupil learns to work after a drawing, which drawing must be thoroughly understood. A new feature consists also in the opportunity now afforded for *designing patterns*, which tends to develop the imagination.

It is true that such work in wood and zinc, when not executed by proficient workmen, always has a rough and unfinished look, the wood being usually poorly cut out, and the various parts inartistically joined together, since it is rare that any one is able, without special instruction, to round off and smooth the cut edges properly. For this reason we propose to connect the rudiments of wood-carving with this sort of work. The necessary implements for wood-carving are a scroll-saw, drill, gouge, and file. The wood and patterns are cheaply procured; of the latter, only the copies *made by the pupils themselves* are used.

The work done in zinc is almost new, and little known as yet. It forms a higher step in this species of work. The awl replaces the drill, and a foundation of wood is used. Remnants of zinc can be bought up cheaply from tin-ware dealers. The simplest house and kitchen utensils are manufactured,—such as pot-covers, spoons, frying-pans, strainers, pots, salt-cellars, etc., etc.

The seventh school year begins with instruction in the large field of carpenter's work. The complete outfit of a work-shop is now requisite, and the carpenters' bench becomes the pupil's true work-table, while various planes, drills, and saws constitute the necessary tools.

The articles manufactured are at first limited to the most simple household utensils, but the pupils speedily advance to more complicated work, When this branch has been thoroughly pursued for a period of two years, carving and turning offer very few difficulties to the worker. The preliminaries here are always carpenter's work, and the free-hand exercises with the clay constitute an additional preparation.

This species of work forms the introductory step in the Russian workshops, and is followed by instruction in turning, and in the locksmith's craft.

Such is a brief outline of the industrial exercises planned for our school, and of which the earlier are already in operation. The plan is by no means in so far definite as not to be open to modifications, which our own experience, or the criticism of others, may suggest; it is the provisional plan upon which we propose to proceed, and the first steps of it at least have already been approved by experience.

These exercises possess *educational value* in many different ways, and may be shown, as we have said in the beginning, to be in close connection with many branches of instruction, and with the collective education of the pupils. Instruction in drawing must of necessity go hand in hand with the modelling. What is drawn here is manufactured there, and *vice versa.*

Further, the rudiments of geometry are taught by means of this work far better than with the aid of mere diagrams. And a large number of definitions and propositions, which are commonly remembered by routine, are, by our method, demonstrated to the eye, and thus remain stamped on the mind forever.

Knowledge of arithmetic is also incidentally acquired. The children learn to cipher practically, to add and subtract, to read the figures on the scale, to divide and multiply them in the most various combinations.

Even certain of the facts of natural history may be taught in connection with the work.

The children learn to know the material which they are handling; they study various kinds of wood, their properties, marks of recognition and adaptation. The teacher goes back to the tree out of which the wood has come, and explains the formation of the annual rings so easily perceptible to the children. They are taught from these how to determine *the age, quality, and value of the wood.* Forms of nature, also, are actually copied in wood, clay, and plaster, whenever such imitation is possible; and when it is not, recourse is had to drawing.

In this way we endeavor to make work-instruction contribute toward the general development of the child. *The hand is educated by the mind, the mind by the hand.*

Any unprejudiced visitor to the school must admit that the plan of instruction possesses positive educational value, and educators who scan wisely the signs of the times are watching carefully the result of the experiment, that they may profit by the adoption of its merits and avoid copying its defects. As the first experiment in precisely the field it occupies, this carefully-matured scheme excites general attention.

After pupils are old enough to use wood-working tools, several classes have been formed from pupils of the public schools in different cities. The object has not been to teach carpentry as a trade, but simply to furnish a training in the nature of the implements employed, and in the best methods of employing those implements. Constant attention is demanded, habits of method and system in the performance of work are established, and the continued employment of the hand and eye, in unison, results in quickness of perception and accuracy of manipulation.

An illustration of the work in these schools is furnished by plates III. and IV. Such work can be done by the average pupils in the upper grammar classes [eighth or ninth year at school] after a course of forty lessons, of one-and-a-half to two hours each. This work is a logical sequence of the work in constructive drawing. Pupils in one class, *e. g.*, will construct the object to be made under the direction of the teacher. Pupils of the succeeding class may be required to make working-drawings of the objects made by the pupils; in the next class the pupils will take the drawings, and, without farther instruction, will construct the object required. By this means drawing, as the language of the artisan, is employed in the one class to describe what has been accomplished; in the other, to indicate what is to be done. This is certainly a legitimate development of the subject of industrial drawing.

From the work which can be performed at the close of one year, without detriment to any of the other departments of school work, and at a very moderate expense, — not to exceed $3 per annum for each pupil, — it is evident that the special work has a direct bearing upon general education, and can be carried on without great expense. If regular instruction were given in the use of carpenters' tools in the two upper classes of the grammar schools, and in the lowest class of the high school, followed by work in iron (forging, filing, planing, etc.) during the remainder of the high-school course, boys who would graduate from such a school after thorough instruction in mathematics, science, and modern languages, might, at the end of three years' practical work in the regular shops, upon attaining their majority, become the most efficient of master-workmen. They would be competent to construct, readily and accurately, from well-drawn plans, whatever might be demanded, and often enabled to originate valuable designs; while their knowledge of the laws of mechanics and the properties of matter would be of inestimable service to them if attempting important inventions of any kind. The earnings of such boys, for five years after leaving school at least, would be double those of the graduates of high schools as at present conducted; and this is by no means an unimportant item. The industrial training would furnish excellent mental discipline, as well as physical exercise, for any member of the school. It could not fail to be of great pecuniary advantage, also, to pupils whose future occupation would require the employment of tools similar to those in the use of which they had acquired dexterity while connected with the public schools.

In respect to the right of the State to furnish such instruction, President E. E. White's article upon "Technical Training in American Schools" presents the subject in the following concise statement of fundamental principles:

(1) The State has a right to teach any branch of knowledge that will promote the public welfare. This is the broad position on which public education rests. The attempt to draw a line through education, and deny the right of the State to cross it, is illogical and futile. The State has either the right to teach all branches of knowledge or it has no right to teach any branch. There is no middle ground.

(2) The right of the State to teach all knowledge does not necessarily make such instruction its duty. The right to teach is one thing, and the obligation to teach is another. The duty of the State in education is limited by its ability. It cannot teach all persons all knowledge, and it is not its duty to attempt it. When the teaching of one kind of knowledge necessarily excludes more important instruction, the State is released from obligation to teach such knowledge. If it has not the ability to cover the whole ground, it becomes its duty to give attention to the more important and useful.

(3) The duty of the State to teach is also conditioned by necessity.

The State has no monopoly of education. The church, the family, and the individual have also the right to teach, and every human interest may organize and support schools for its promotion and benefit. When needed, instruction is or will be given by other agencies. The State may or may not provide it. Its concern is to see that such necessary instruction is efficiently given.

(4) The primary and imperative duty of the public school is to provide training and to teach knowledge of general application and utility. It recognizes no class distinction, social or industrial, but provides a general education for all classes of youth. It is a *common* school, a school designed to impart a common education,—an education open to all and useful to all.

This primary function of the public school is of the highest practical importance and value. Its comprehensive aim is to prepare the child to discharge the duties and meet the obligations of coming manhood, including his relations to the family, society, and the State,—relations involving the highest and most important activities of civilized life. In performing this function the public school assumes that every boy that crosses its threshold to receive instruction is to be a man, and that his first and highest need is to have all the elements of manhood within him developed, quickened, and energized. The first element in this elementary training is character, and the second is intelligence,—moral and intellectual furnishing and force.

(5) The public school, as above defined, exhausts neither the right nor the duty of the State in education. The State may establish higher institutions, and it may organize or encourage special schools to promote important industries or to meet the wants of classes. It has the right to supplement the public school by special schools for technical training.

In conclusion, the following brief summary of the points to be established is presented:

(*a*) There is a constantly increasing popular demand for results of greater commercial value from our educational system.

(*b*) Manual instruction can be afforded, not only without detriment to intellectual advancement, but as a valuable auxiliary to mental progress.

(*c*) There are certain fundamental operations which may be taught as the basis of all trades.

(*d*) The State has a right to afford such instruction.

(*e*) All experiments in the department of manual training are suggestive, and demand the attention of the most progressive educators of the country.

HOW TO IMPROVE THE QUALIFICATIONS OF TEACHERS.[*]

BY W. T. HARRIS.

THE superintendent of schools finds it his most important duty to create and foster an enlightened public opinion in regard to the province and functions of the system of education under his charge.

Where the people furnish the material means to support the school, and choose teachers and superintendents to direct it, public opinion marks out the limit of development, For the teachers and superintendent must represent the will of the people. They cannot successfully establish measures not approved by the community.

On the other hand, if the ideal standard of education is high, in any community, means will be found and representatives chosen to realize that ideal.

On the conviction of the people, therefore, the perfection of the school-system depends, and no structure has any stability if its educational results are too complicated or too subtle for popular recognition.

From this we deduce our statement regarding the most important duty of the superintendent. The superintendent is a specialist in matters of education. The community has chosen him and set him over a special department, namely, the direction of its schools. He has the best opportunity to learn what the school ought to do for the children of the people, and he can discover the best measures for its accomplishment.

Having, as a specialist, to conceive an ideal of excellence in his department, he has a two-fold duty remaining to perform: he must realize this ideal in the administration of the details of his system, and he must educate popular opinion in his community to appreciate and support that ideal.

The superintendent cannot consider too carefully the last item of his list of duties. *He must make his educational ideal valid in and through the conviction of the people*, and never allow himself to suppose that he has discharged his duties when he has discovered the educational needs of the people and organized the details of an efficient system to supply those needs.

It is unfortunate for the cause of education that so many excellent superintendents have neglected this third duty, and have even rejected its requirements as unworthy of attention from men with a high sense of honor. They have seen the political demagogue and his base flattery of the passions of the multitude, — corrupting them for the sake of perpetuating his own selfish power. An appeal to the people, — any means used to influence the people directly, — seems, therefore, to be objectionable on the score of demagoguery.

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[*] Written for the Superintendent's Section of the National Educational Association, March, 1882.

Holding this view, our able superintendent devotes himself to discovering educational wants and perfecting his work of instruction and discipline, and he haughtily demands the support of the community and expects their confidence as a matter of right and of just due to himself. If the people take a different view and are dissatisfied with his exercise of power, and in the end overthrow his establishment, he assumes the air of a martyr and finds his consolation in enumerating the petty circumstances of his persecution by low-minded enemies, while he was pursuing the strict and narrow path of duty. The people who removed him simply call him impractical, and relate a few instances of his stubbornness in carrying out his abstract regulations where they conflicted with the customs and usages of the community. He insisted on applying his abstract rule of industry for all the children in cases where study at home ruined the eyesight of Mr. A's son, or regularity and punctuality were insisted on so strenuously that Mr. B's daughters would go to school when not fully recovered from a fever, and the consequence is the death of one of them; — or in order to preserve the furniture of the new school-house from the wear incident to use by children not seated for study as in regular school-hours, an abstract rule required all pupils to remain in the open air until the bell rung at five minutes before nine o'clock, when all pupils were ranked in lines in the school-yard and marched into the building in military order. This being rigidly adhered to, a very inclement morning caused much suffering and some cases of severe illness.

These are serious evidences of impracticability,—" of a lack of common sense," as the people will tell you. But even when the teacher or superintendent is very discreet in all matters of administration of the schools, if the parents feel themselves treated without respect and due consideration they will misinterpret his motives in a multitude of instances, and accept an unfair account of much that he has done, and thus come to view him as lacking disinterested regard for duty, or else as lacking common sense. ("Common sense" differs from the other kind of "sense" in taking into consideration all the circumstances of the thing, — all that has interest in *common* with the thing, — while the lack of common sense shows itself in the tendency to view its own subject of interest out of its proper relations to the rest of the world; it gets so close to its object that it is exaggerated by the perspective, and the great world is hidden from view by the mole-hill in the foreground.)

The educator who lays all this stress on his first and second duties above-named, and neglects the third one, — that of educating public opinion, — is like the architect who draws an excellent plan on paper and forthwith builds a beautiful structure with hewn stone and the best of mortar, but who has neglected the preparation of a proper foundation. After a short time cracks begin to appear in the walls, the structure becomes dangerous and must be pulled down. In order to complete our comparison we must imagine our architect extolling the merits of his plans and the convenience of his building for human uses, — it was a thoroughly rational contrivance to shelter man from the elements and give him light, heat, and ventilation, and room for all his needs; what a calamity, therefore, that it must now be pulled down! That he should not recognize the necessity of planning and building with reference to the foundation as well as with reference to the human uses for which the building is erected, would totally unfit him for the business of architect and builder. But there are many educators who cannot see that the superintendent should look constantly to the basis of the institution under his charge, and build all his improvements on the foundation of the convictions of the people, and take care to buttress all the walls of his educational system upon distinct and explicit recognition on the part of both parents and pupils. In our country and time no system of managing an institution will achieve a permanent success unless it is based upon, and interprets correctly, the instincts and convictions of the people, and unless it is made to *seem* to the people what it is in reality.

"Three things govern the world," says Gœthe: "Strength, Wisdom, and Appearance." Wisdom is correct insight; Strength is the reality of being; Appearance is the *seeming* of being; and whether false or true, seeming will furnish the foundation for practical action. False appearance will lead to impotent deeds; true appearance alone will furnish a basis for positive, rational deeds. Love and wisdom will not diffuse themselves for the blessing of mankind unless their mode and manner of *appearance* is looked after, and unless the appearance or mode of manifestation of their recipients or objects,—that is to say, unless the concrete shapes of public opinion are understood and interpreted.

After the battle of Valmy, in which Gœthe saw, with his own eyes, the first defeat of allied monarchical power by insurgent French democracy, he said to the officers of the defeated Prussian corps with whom he had approached the position of the enemy that morning: "From this place and from this day forth commences a new era in the world's history, and you can all say that you were present at its birth."*

His thought was this: Henceforth it shall not be sufficient for the governing power to rule, even though it rule wisely, if it decides its course apart from the counsels of the people. Henceforth in the history of this world it shall become more and more necessary to take into account the convictions and desires of even the lowest stratum of the people.

The lower the stratum of the people, the less power they have to penetrate the disguise of appearance and see the true reality.

This makes it all the more necessary to see that the appearance of what is true and good is not mistaken by humanity, and in its place the false and evil adopted because it has put on the guise of the true and good, and masquerades under its appearance. We must do right, and also make it seem to be the right. He who educates the people to recognize the right by its appearance, and under its marks and guises, does as good a service to the world as he who merely discovers the right, or who merely organizes it into an institution.

In discussing any topic relating to the duties of a superintendent of schools, therefore, it is necessary to keep in mind this three-fold nature of his work. By the light of its principle we shall find the solution of many difficult problems that beset the administration of the affairs of education.

I have been led to make this general disquisition on the scope of the work of the director of educational interests, because the question assigned to me for discussion before your honored Association on this occasion is one that cannot be discussed profitably without a just appreciation of the third principle in the three-fold duty of the superintendent.

I therefore announce, as the general form of my answer to the question: How can we improve the qualifications of teachers? Bring them to feel by all legitimate means and influences the importance of making themselves strong with their community.

They must teach well, and this includes good instruction and good discipline. They must conduct the school well, and this includes not only a proper reference of their work to the regulations of superintendents and school-directors, but that most important matter of educating the community at large into a critical knowledge of the quality of a good school.

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* "Campaign in France:" Goethe's Diary for Sept. 22, 1792. Quoted by Creasy: "Decisive Battles of the World," p. 343.

At first thought the teacher would be supposed to have enough to do if he attended simply to matters of discipline and instruction. In order to reach and largely influence parents, one would believe it necessary to visit the parents often, and this would consume so much time and energy on the part of the teacher as to seriously weaken his fund of strength left for the work of instruction and discipline. But, in fact, it is not expected of the teacher that he shall make a system of visiting parents; such a course would be likely to diminish his influence. It is through the children themselves that the parents are best influenced. The teacher who is careless of the opinion of parents, and who feels no direct responsibility to them, governs his school in a very different manner from that of him who keeps the sense of the community constantly before him. Every teacher comes into relations with the parents of his pupils oftenest, as far as personal interviews go, through the failures of his pupils.

Irregularity of attendance, want of punctuality, idleness, backwardness in scholarship, and improper behavior are occasions for consultations with the parent. The polite request of the teacher, made in a manner indicating interest in the pupil's welfare from the point of view which the parent ought to take and does take, will nearly always secure the prompt attention of the parent and his cordial coöperation. The coöperation of the parent removes most of the difficulty of managing pupils.

A comparatively small number of personal interviews suffice to establish the reputation of the teacher for good or bad among the parents of his district. One case of arbitrary exercise of authority, or one case of ungoverned temper on the part of the teacher, will be remembered by all who hear of it, — and all will hear of it. Each parent takes to himself what is done to any one parent just as each pupil trembles at the punishment inflicted on any one of his fellows, and perhaps the good pupils suffer more than the bad ones through imagining themselves to be in like circumstances with the culprit.

A sense of responsibility to the good opinion and moral support of the parents in the community makes itself felt on slight occasions and soon gets recognized by all and gives rise to mutual confidence. The influence upon the pupil of a knowledge that a mutual respect exists between the teacher and his parents is exceedingly beneficial.

Whatever is done at school is reported at home, though not directly by the children of the family. The parents form an opinion of the teacher through the fragmentary reports of their children, and that opinion reacts directly on the behavior of the pupils. The experienced teacher who has long been in the habit of looking beyond his pupils to the families they represent, has learned how to mould opinion at home through the impressions he leaves on the minds of his pupils.

The superintendent can do no greater service for his teachers than to develop in them this habit of considering all their instruction and discipline as having an indirect relation through the pupils to the parents; and again, a still further reaction upon the pupils which affects them permanently. The wise teacher will not waste his efforts in an impulse on his pupils that will be neutralized at once by the parents. He will find a way of educating the parents by a series of indirect lessons.

These matters of relation of the teacher toward parents are very important, but they depend more on the impulse of the teacher than on the efforts of the superintendent.

There are, however, many devices of school management entirely within the control of the superintendent which may be used for the improvement of the quality of teachers' work.

I will mention, first, *the suspension of pupils.* This may happen for irregularity of attendance, or for disobedience. Suspension is not expulsion. The teacher should not exercise the power of expulsion. Suspension means simply that the pupil has in some way violated the rules of the school in a serious manner, and that the case is referred to the superintendent who will restore the pupil upon the application of the parent. This brings about a meeting between the parent and superintendent, who must always be conciliatory toward the parent. It is the great mistake of some superintendents that they assume a browbeating air toward the parents of pupils who have been suspended. If the parent is punished in that manner, the pupil's cause has become the parent's cause, and the effect is lost on the pupil.

The parent must be free to complain to the superintendent in regard to the conduct of the teacher, but the superintendent will hold his own counsel. In this way sometimes the fact will be revealed that the parent has lost confidence in the justice or ability of the teacher. In that case the child cannot be expected to profit by the instruction he will receive in that school, but will be a source of insubordination and a destroyer of sympathetic relations between the teacher and other pupils. The superintendent will explain this condition of things to the parent, and urge strongly the transfer of the pupil to some other school in the neighborhood. If the parent insists on retaining the pupil in the same school, he will then see the necessity of correcting his alienation toward the teacher, and will consent to a personal interview, Under most circumstances transfer of the pupil to another school is the best course. Transferred pupils come among strangers (both pupils and teachers), and they have the best of opportunities to begin a new career. The parent is also far more apt to frown on a repetition of an offence by his child in the new school, — he now suspects that the original difficulty was the fault of his own child instead of the fault of the former teacher. The child gets no sympathy at home for his misbehavior, and finds obedience the easiest course at school. But the recurrence of trouble at school on the part of a pupil, after a case of suspension and restoration to the same school, is more likely to be accounted for by the parent as a case of grudge on the part of the teacher.

It is a common practice in our cities to have rigid district lines, separating one school from another. It is thought that pupils should never be transferred from one district to another. This habit of preserving strict lines costs a fearful price. The collisions between the teacher and the pupils and parents ripen into feuds and continue to accumulate, with interest, from year to year, while by the plan of transfers they are neutralized at their inception and a strong attachment arises for each school on the part of all its patrons.

There is no better preventive or remedy for the evil of irritability on the part of the teacher than this device of transfer to other schools in case of severe complaint on the part of the parents.

The teacher is made aware of the effects of his or her irritability, and at the same time of responsibility to the community.

The peculiarity of the teacher's vocation,—his being obliged to deal with immature minds, and especially with undeveloped wills subject to fits of caprice and irrationality, — the very nature of the teacher's vocation tends to produce dogmatism and irritability. The superintendent must therefore organize all his means so as to counteract this tendency, and protect the teacher against the effects of his own vocation.

Of course, it will be conceded that professional training in a good school is the best preparation for the new teacher. I have made repeated examinations of the comparative merits of normal-school graduates and other teachers. The result has proved to be in favor of the normal schools by almost fifty per cent. in quality of work. The criterion has been the estimate reported on the teacher's work by the principal of the school and confirmed by the superintendent. Promotions for merit have been doubly in favor of the normal graduates. The average teacher stops growing within a short period after achieving fair success, — three to five years being the ordinary limit fixed. The teacher educated at a normal school is more likely to continue grow ing throughout the entire career.

The best device for the initiation of new teachers, whether from the normal school or elsewhere, is what is known in cities as "substituting." The new teacher is sent to fill temporary vacancies as they occur. If a partial failure is made, and demoralization takes place on the part of the pupils, the evil is soon remedied by the return of the regular teacher. Meanwhile the teacher goes to fill some other vacancy, with a store of valuable experience acquired. It is very difficult for a young teacher to recover control of a school-room after it has been lost by the mistakes of inexperience. The plan of sending out such inexperienced teachers as substitutes not only makes them successful in a far less time, but it positively saves many from complete discouragement and ultimate failure.

I have known many teachers of long experience, but wretched failures after all their experience, who have become good teachers after being employed a few weeks as substitutes.

This practice of sending substitutes to fill vacancies is made more effective in improving the qualifications of teachers by the organization of schools in groups and placing them under supervisory principals. The supervisory principal can manage a system including twenty to thirty subordinate teachers. His work differs from the susuperintendent's in the fact that he is required to hear at least two regular recitations daily,—a circumstance which keeps his supervision at the point of view of the teacher, and makes it differ widely from the supervision of the superintendent.

The links of supervision, when developed fully in a large city, are three in number and very different in kind. The general superintendent is best qualified to detect one-sided tendencies in instruction and discipline, and to take note of the trend of public opinion, give advice to the school-board, etc. The assistant superintendents study details of management more closely and give more stimulus to the application of special methods and the correction of defects in practice. The supervising principal can give daily support to a teacher that is failing in discipline or instruction, and can conduct classes in the presence of the teacher, and demonstrate the best methods of instruction as well as prevent too harsh discipline by having the flagrant cases sent up to him for correction. These flagrant cases he can usually reform by keeping a record of them and having the same pupil bring up a daily record of his behavior from his teacher, until he succeeds in attaining a perfect record for several days in succession.

There is still another very important means of improving the quality of instruction, by introducing into the course of study a certain amount of work to be done orally. The pupil is to have no text-book and have no previous preparation in these lessons. The teacher must make elaborate preparation and furnish the pupil information, and at the same time, by conversation, connect this new material with related objects that have already come into the child's experience.

The oral lessons should not be given on work that the child is competent to master by his own study, — such as the disciplinary studies, reading, arithmetic, geography, and grammar. But they should relate to the sciences of nature and to civil history, — nature and man.

Inasmuch as the preparation by the teacher must be elaborate, there should be not more than two of these oral lessons a week.

It has been a great mistake to introduce these oral lessons every day. The teacher has been unable to meet the strain on his energies, and has been obliged to come to the lessons unprepared.

With one long lesson a week in natural science and one in history the teacher makes weekly preparation, and gradually becomes well informed in all departments of natural science and civil history. A teacher continually growing in knowledge of the world will continually improve as a teacher.

This oral work stands in sharp contrast to the regular text-book work. Its results, however, continue to reappear in the greater interest which the teacher infuses into the recitation from the text-book. His ability to cross-question and to bring out into clearness all phases of the subject continue to develop.

There is, and must be, a periodical recurrence of a demand on the part of the public for the introduction of lessons in natural science and history into the course of study.

These are information-studies, contrasted with reading, writing, arithmetic, grammar, and geography as discipline-studies, and their methods should be very different. Then they will be mutually helpful. All text-book instruction tends to degenerate into parrot-like repetition of words without investigation of the meaning. All oral instruction tends to degenerate into a pouring-in process for the pupil, giving him amusement and saving the head-work for the teacher alone.

The school should not give up its information-studies because the people cease to clamor for them, nor introduce them at the expense of discipine-studies when extremists demand it.

The superintendent must be conservative in action and conservative likewise in reaction.

Another very important matter in improving the qualifications of teachers is the system of promotions and the grading of salaries. There should be opportunity given for the reward of professional zeal and successful experience. The recognition of this by promotion to positions of greater responsibility and dignity is as important as the recognition of it by increase of salary. The growing teacher rejoices in new responsibilities and duties. The new situation furnishes new problems and new applications of skill. The consciousness of growth in spiritual capacity is the highest satisfaction which man can attain. All teachers can grow, or improve in their profession, and must do so for a few years. if only a few years. The grading of promotions and salaries should be such as to recognize four or five years of growth in the position of ordinary assistants; then there should be three or four classes of assistants; there should also be several classes of principals of schools, although the last point is not to be affirmed without mental reservations.

In a school with many grades of pupils, from beginners up to the seventh or eighth year of school work, it is easy to say where positions of responsibility and honor should be fixed. The teacher who has charge of the children just beginning school should receive a higher salary and be selected because of approved experience in the management of young children. In large schools of this character, (schools having seven to nine hundred pupils) there should be two teachers of higher grade to do this work, — one might be a single grade higher and the other one two grades higher. Again, at the point near the finishing of the school course there should be teachers of higher grade to do the work. The starting of pupils on the right track, and the finishing of the course, are the two most important points where we desire a specially able teacher, if we are bound to select two points from a line where we desire all to be good. The first teacher does much to form habits of proper study and proper attention in recitation that no other teacher can do quite as well. The teacher of the highest grade does much for the motives and aspirations with which the pupil is to go forth to the next grade of his education, be it school or business. To the highest assistant is assigned the control of the entire school in place of the principal, in case of his absence. The exercise of directive power is recognized as implying higher dignity and as earning a more liberal recompense.

service and to success actually achieved,— constit
appliances for the improvement of teachers.

THE NEED OF MORE PRACTICAL AIMS AND METHODS IN COLLEGE WORK.[*]

BY R. F. LEIGHTON, PH.D., BROOKLYN, N. Y.

INFLUENCED by the feelings which this presence inspires it is natural that we should revert to the character and general process of that academic training the benefits of which we have enjoyed, and at the same time inquire how far it has been modified or enlarged to adapt it to the changed and changing circumstances of life that confront us to-day. There is no question but that the past twenty years have been of unprecedented activity, and have witnessed changes in all the varied and vast industries of life that require readjustments and corresponding changes in the courses of study and methods of instruction in our institutions of learning. The education that was ample fifty years ago is now insufficient. The man who steps into the busy activities of life to-day must be better equipped for the sharper conflicts and keener rivalries, or failure awaits him. In fact the general diffusion of higher education has destroyed the old ideal of self-made men,—as one who should begin in ignorance and accomplish all he does by means of that ignorance. The time has come when that idol is broken, and to-day "the truly self-made man is he who begins, it may be as of old, from the beginning, but who goes through college, and accomplishes with cultured mind the best results." The very nature of our civilization, — its varied life and industries, the diversified applications of science and art, — requires enlarged opportunities for education, that colleges and high-schools alone can afford. Statesmen have begun to realize that skill in the arts of invention, and discovery in the processes and economies of production, depend in a great measure on the thorough and earnest work of the schools. In short, a multiplicity of influences, — the easy intercourse with foreign countries, the multiplication of cheap books which have furnished important auxiliaries to every other instrument of education, the press teeming with the choicest and best thoughts of the age, — have wonderfully facilitated the diffusion of knowledge among all classes, and have contributed as one general system to instruct and discipline the mind of the age. This wide diffusion of knowledge among the masses has in turn reacted upon our colleges, higher institutions of learning, and especially upon our common schools, de-making of them a more liberal, practical, and thorough training. The discussions, the sharp criticisms, the "attacks all along the line" to which our common school system has been subjected during the past twenty years have shown its deficiencies, its many radical defects, and have very generally brought about a readjustment of methods and a better adaptation of the work to the practical needs of life. A wonderful interest has been awakened on all sides in the subject of popular education as the pillar and safeguard of republican institutions, and because of that interest the common schools are doing their work more efficiently than ever before.

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[*] Read before the Alumni Association of Tuft's College.

While these needful and salutary changes have been made in our system of general education, there is still a widespread feeling that the course of study and methods of instruction in our colleges have not kept pace with the general progress of elementary education, and, in a large measure, fail to meet the new and more exacting demands of the age, and do not produce the most perfect development of the mental powers, nor, indeed, furnish that practical help in after-life which such a course of study ought to supply. Herbert Spencer best tells us the use of an education: "To prepare us for complete living is the function which education has to discharge: in what way to treat the body; in what way to treat the mind; in what way to manage our affairs; in what way to bring up a family; in what way to behave as a citizen; in what way to utilize all the sources of happiness which nature supplies; how to use all our faculties to the greatest advantage to ourselves and others, — how to live completely." Now, many people think that the results accruing from a collegiate education not only do not answer these ends, but, viewed from a much lower standpoint, are insufficient and unsatisfactory, and do not even correspond to the outlay of time and money; that too many emerge from the walls of our colleges, poorly equipped for future work of any kind; that there culture is made an object of itself, and that, by insufficient means and desultory study, the mind is little fitted to cope with the actual difficulties of life. The establishment of technical schools and special courses to supplement in a measure these deficiencies that are so apparent in college work is an evidence that the ordinary college curriculum does not afford sufficient opportunity for this useful and practical training which the work of life demands. The theory on which a curriculum of study ought to be founded would seem to be, that certain studies are best fitted to prepare one for the duties of life.

What, therefore, best equips a man in general for these duties, — and by this I mean whatever knowledge gives intelligence, whatever reacts upon the mind in such a way as to feed and quicken all its energies, whatever converts the mind into a powerful instrument for its possessor to wield in the activities of life, — that is evidently the path to a complete and generous education for that person. Now, the fact is incontestable that every man is born with capacities that give him readier access to certain circles of knowledge than to others. While a broad view of culture may demand that the mind shall not be a stranger to any part of the great circle of knowledge, experience teaches us that the human faculties are limited, and that there are few capacities sufficient to grasp the whole range of knowledge. While one individual gains access to intellectual life and vital knowledge through the study of the sciences or of mathematics, another can gain that access only through the study of language and literature. Discipline ought not to be pressed as an end in itself, and above all no student ought to pursue a line of study beyond the preparatory stage, for which he has no taste, and at the risk of keeping the mind from the knowledge which is congenial to it, and which will eventually react upon it, and quicken all its energies. While the beginnings of a liberal education ought to be the same for all, and its foundation thoroughly laid, the college should aim to give that practical training so necessary to cope with the duties of life, that insight into questions of finance, that close study of political history, that comprehension of the general and comparative principles of political economy, bringing with it a necessary consideration of questions pertaining to the relations of capital and labor, of taxation to the general welfare, that thorough and special study of jurisprudence and international law, all of which would train a class of men competent to deal with these industrial, commercial, financial, legislative, social, educational questions which are pressing to the front and which have hitherto been too often the sport and experiment of every demagogue. It is the knowledge gained by the special aptitudes born in every one which, after all, is the only truly disciplinary knowledge that tells in the long run. No student, then, should be required to devote the early years of manhood to studies for which he has no special capacity, and which he thinks conveys no information directly useful for life. "Insist on yourself," says Emerson. "Your own gift you can present every moment with the cumulative force of a whole life's cultivation ; but of the adopted talent of another you have only an extemporaneous, half possession. That which each can do best none but his Maker can teach him. No man yet knows what it is, nor can, till that person has exhibited it. Where is the master who could have instructed Franklin, or Washington, or Bacon, or Newton?

Every man is a unique." With the present methods of college instruction and organization, the student is compelled, at an age when he ought to be forming the valuable connections of life, to enter upon a course[*] of special professional preparation. "The increase in the requisition for admission to college which has been going on steadily," says President Eliot, "for many years, has the tendency to raise the age of admission." According to the same report the average age for the last few years has been eighteen years and five months. How few can spend so long a time in preparation, especially when the college course[†] must be supplemented by two or three years of special professional training. It is evident that such a scheme has no regard for the exigencies of common life, and must result either in limiting the advantages of college training to an increasingly smaller number, or in shortening the period of professional preparation. A change of some kind must come, from the very fact that life is too short for the requirements of such a course of study. Hence, men who take a hard, practical view of life no longer send their sons to college, but look about for an opportunity where they can pursue special lines of study for one or two years before entering business; and so, boys who might have a college training up to eighteen or to nineteen are put to work at sixteen or seventeen. Wise men lament over the decline of culture, and sermons are preached against the lust of mammon;[‡] but the fact remains, according to the statistics collected by President Barnard, that the proportion of college-bred men is growing perceptibly less in this country.[§]

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[*] Prof. Gildersleeve, in an article printed in the Princeton Review, on "Classics and Colleges," has some very valuable and instructive suggestions on this subject.

[†] Everett, Motley, and Bancroft entered college at thirteen; Lowell at sixteen; Morse and Woolsey at fifteen; N. P. Willis and Porter at sixteen; Webster at fifteen; Chase and Choate at sixteen; Whitney at fourteen.

It will, of course, be urged that the requirements for admission have been very considerably advanced since these men entered college. Their success in life shows that they were not so poorly equipped as some would have us believe who extol the present advance in the standard. Again, the "objection may be raised that they are picked men; but it does not follow, because they are picked men that they were precocious men; and it is very evident that they represent the average age." — *Prof. Gildersleeve, l. c., p.* 84.

[‡] For some excellent remarks on this subject see "Colleges and Classics" by Prof. Gildersleeve.

[§] According to President Barnard's statistics ("Academic Degrees"), p. 10 f., the number of undergraduates in all our colleges were (in 1870) 15,000. In Germany, not to count those in the technical and mining schools, there were over 19,000 university students; in France, 11,903. From a very careful estimate of the number of under-graduates in all the colleges between 1840 and 1870, it will be seen from the following table, that relatively to the total population of the country, they have diminished: In 1840, one to 1,549; in 1860, one to 2,012; in 1870, one to 2,615; in 1880, one to 3,000. Estimating the present

When the great movement that preceded and caused the Renascence swept over Europe, and men became aware of the marvels of literature and the beauties of the external world, the courses of study and the methods of instruction in the schools had to be readjusted to meet the changed circumstances of the times. The universities of England, which have very generally served as our models of college government and organization, stood aloof from these changes and, therefore, felt little power from the Renascence.* Lord Bacon ridiculed the great universities of his day for teaching men to believe rather than to think, and compared them to becalmed ships with their sails idly drooping, waiting to be moved by the wind of current opinion and refusing to dip their oars and to become a vital force. We have again entered upon a new era, one distinguished from all preceding ages in being intensely practical. Our colleges, although they have introduced important and radical changes sometimes in the course of study, more often in the general management, that they might the better answer the demands of public opinion, are still subjected to severe and persistent criticism, and are too often feeling the lack of public confidence in the decrease of attendance and in the difficulty of obtaining funds to carry even the proposed changes into efficient execution, because men are looking for greater returns where so much has been already invested. As these changes have not fulfilled the predictions that were so confidently made, have not even answered in a measure public expectation, some of our college authorities, — conversant, it would seem, with the fact that deep dissatisfaction prevails in England in regard to college and university educa-

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population at 45,000,000, gives about 15,000 (the number in 1840 was 9,416; in 1860, 13,661) as the total number of under-graduates in all the colleges of the country.

The ratio of students to population in New England for several epochs is given in the following table:

1827.	1839.	1856.	1870.	1880.
1 : 1,513	1 : 1,294	1 : 1,689	1 : 1,927	1 : 2,200

Again, in 1830 the number of colleges was 120; the number according to the latest enumeration (Prof. Nightingale) is 425, or excluding Catholic colleges, 355. The population in 1830 was 12,000,000. It is now about 45,000,000; *i. e.* the population has increased nearly fourfold, the number of colleges threefold, and the number of students twofold. The average attendance in 1830 was 67; in 1870, 44; and in 1880, about 40.

* The Renascence had far less power in the schools of England than in those of Germany. In Germany the Renascence and Reformation triumphed together, and entered the schools together. The leading reformers were at the same time the leading men in intellect and culture. In England the power of the Reformation and Renascence was separate. The Reformation triumphed and got possession of the schools, but unfortunately the reformers were men of the second order. The men of intellect and culture were men of the Renascence but not of the Reformation. Hence the schools in England received far less impetus from this source than those in Germany.

tion,—have boldly adopted German universities as their model. Hence we too often see college and university methods of instruction jumbled together, with little comprehension of the work which either is fitted to accomplish. Even if we grant that the aim of our colleges is the same as that of the German universities, we ought to be cautious in accepting them as models of college government and instruction, or in regarding their methods of training and discipline as applicable in all respects to our life, particularly when such men as Von Sybel, Lange, Curtius, and others find so much even in their system of education. Still it would be a great gain if, in adopting German universities as our models, we could at the same time introduce German methods of instruction, — the ability, the thoroughness, the patience of the German professor. The German student leaves the gymnasium at about the same age that the American student enters college.* It is true that, so far as mathematics and physics are concerned, the German gymnasium does not present so full a course as the American college, but in other departments the instruction is much more thorough and complete; *i. e.*, in Germany the preparatory drill is completed in the gymnasia in a better manner and four years earlier than in the preparatory schools in this country. At the university the German student enters at once upon university-work, — the technical and professional training, — as the real preparation for life. Some of our colleges realizing such facts as these have attempted to remedy the evil they disclose by carrying on university work by college methods, but the results thus far have not been gratifying. President Porter,† in some interesting papers on the theory and administration of college education, finds the root of the evils in our system of college education in the preparatory schools, — in poor instruction and consequent insufficient preparation for college. It would seem that he overlooks for the moment what all educational experience teaches,—that educational improvements work from the top downward, and, hence, the sure way of improving and elevating the preparatory schools is to apply the remedy first in the colleges. Education is everywhere what the college or university makes it.

I know well that it is much easier to discover faults than to point out a way to amend them; but, at a time when dispondency prevails in so many of our colleges, when dissatisfaction is openly expressed with all, and the large majority of young men who wish to enter upon higher work do so, not at home, but abroad, I am confident that suggestions offered in no unfriendly spirit here, where our hopes and interests so strongly center, will be welcomed. I wish, therefore, to invite your attention briefly to the consideration of the *need of more practical aims and methods in college work*, or to answer indirectly why it is that the German student, with apparently no better natural abilities, completes in a more thorough and satisfactory manner what corresponds to our College course, four years earlier, and his University course, or preparation for the actual work of life, two or three years earlier, than the American student. In fact we have nothing that corresponds in thoroughness and completeness to the University course in Germany.

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† American Colleges and the American Public, p. 74 f.

I wish, in the first place, to guard against the misapprehension that time may be gained by slighting the preparatory work. The student's preparation for college ought to be as thorough and complete as, under the present circumstances, is possible. If, however, the preparation for college is incomplete, let the drill and study be continued during the freshman year; but after that, school-boy work and preparatory methods should give place to something better. During the last three, certainly during the last two, years of college-life, students ought to be doing independent work, and in those special lines of study which they think will be useful in life. It would seem that this want is met by the various elective courses in our colleges, open to all after the freshman year. This elective work, however, is not conducted in the spirit and manner for which I plead, but the same school-boy methods,—the hearing of recitations, the mastery of the text-book,—are continued to a time when scientific study, personal research, and original work ought to find a place. It is no new thing to call in question the methods employed at present in our colleges in teaching the languages, particularly the classical languages. On account of the faulty methods and the meagre results the protest has been most earnest, because it is seen that all classical studies are brought into danger. Starting with the idea that classical learning can be obtained only through the grammar, a dreary grammatical and philological drill, like the philosophy of Albertus Magnus, —the mere introduction to which was of itself enough to absorb the student's whole time,—really guards the access to any large communion with the literature, or vital knowledge of the political and social life of the ancients, as derived from ancient authors. "I know of nothing," says Prof. Bowen, "better calculated to render the pupil insensible to the beauties of classical literature than to make the words mere pegs on which to hang long disquisitions on the latest refinements in philology." Galileo complained that he could not induce the schoolmen to look through his telescope, for they held that truth could be arrived at only by comparison of manuscripts. Now, classical learning can be obtained only through the grammar. How incomparably greater would be the results accruing from a course of classical study if a competent teacher should bring the student by new methods, by better instruction, by the use of the language in reading and speaking, by a large contact with its literature, to drink in the spirit and zest of antiquity. This would be a knowledge: these would be results that would soon set at rest all questions as to the utility of classical studies. Some object to teaching the classical languages for speaking purposes, both because it is impracticable and because this method of teaching, when applied to the modern languages, belongs to what has been called "The commercial theory of education." Hence, another impetus has been given to the tendency to make education a positive dis-preparation for the proper duties and cares of life. If we do not wish to miss the ultimate object in the study of language, let our aim be to perfect our use and mastery of it as a medium of converse with the literary, historical, philosophical, or artistic sense of the past; to each of which senses we give a chance by treating language as literature, while mere grammatical and philological studies bring vital knowledge to but few. Again, colleges, in so far as they treat their students as mere boys, whether it be in prescribing discipline which may be salutary at fifteen, but is an intolerable nuisance for young men, and which, therefore, indirectly promotes the occasional outbreak of disorder; or, in laying down one course of study for all, thwart in a measure by such management the very aim which young men ought to have in view in acquiring a college education, namely, a "knowledge of themselves and the world," as Matthew Arnold expresses it. Every college student is old enough to form opinions of the relative value of studies, and that he should be encouraged to form such opinions is in every way desirable, is in fact one of the things he ought to do. "What is more desirable," asks Matthew Arnold, "than for the student to consider what subjects are most important for him to study, what knowledge his after-life is likely to demand, what his own intellectual powers and defects are, in what way he may develop the one and correct the other?" In this way every student is compelled to study his own special aptitudes, and then to select those studies through which his access to "vital knowledge and intellectual life lies." Of late years, in order to give some scope to this faculty of selection, or perhaps with the idea that a college would become a university if the catalogue offered a great variety of courses, there has been a crowding of a vast multiplicity of studies into the college curriculum,—some elective, some compulsory, but of nearly all of which the student is expected, at one time or another, to get a smattering. When we reflect that these "increased facilities" have been offered to the detriment of more thorough and extensive work in special lines of study, it would be well to inquire if the old curriculum had not its advantages, if not in what it did, certainly in what it left undone. It did not, at least, prevent individual expansion by compelling or encouraging the student to dissipate his time in too wide a range of studies. Then, again, we ought to disabuse our minds of the idea that has been of late years too prevalent, that a college can be converted into a university by simply increasing the number of studies and the variety of courses. A university, to be such in reality, must do university work by university methods.

I would solve the difficulty by separating distinctly,—and the bifurcation, as Matthew Arnold calls it, should come at the end of the second college year,— college education and university education.* Their aims and methods are different; the office of the college being to give instruction in prescribed studies, while the university offers a business and professional training. As matters are now managed every college attempts university work in its various elective courses, and that by college methods, and the result has been, and must always be, a failure. Our better colleges could then with advantage, in a two-years course, return to their former aims, which have been too hastily abandoned, of giving an intellectual training which is desirable for every one, whatever is to be his business or profession. The smaller colleges and most of the so-called "universities" should devote themselves to the more modest but more useful work of becoming high schools. In the colleges proper there would then be, at the end of the second year, a line drawn between college work and university work, between college methods and university methods; on one side of which preparatory work and elementary methods, carried out with vigor and thoroughness, should prevail, to be superceded by scientific methods, by personal research in special lines of study, by personal communion with sources. The lack of opportunities to pursue special courses in the classics, in history, in politics, in political economy, in physics, in mathematics,—a want deeply felt among a large and constantly increasing class of students,—is yearly sending thousands to foreign universities. Where in the United States can a teacher prepare himself thoroughly to give instruction in Latin, or in history, or in political economy? The ordinary college-training is far from sufficient, The Germans require their teachers of the classics to pursue Latin and Greek as a specialty for four years after completing the course in the gymnasium, which as a classical school ranks with our best colleges.

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* Since writing the above I have received the Report of Michigan University to the Board of Regents, from which I quote the following: "In the Michigan system, for the present at least, the secondary education must be completed, not in the high school, but in the university; and end with the 'required studies,' or about two years after matriculation. The age at which the youth of Michigan pass from the secondary to the higher work in the university is a little upward of twenty. Thus they are about two years older than the German student at the same stage of education. There is, therefore, no reason to fear that in giving our students at this point perfect university privileges, that is,—perfect freedom in choice of studies and amount of work,—we incur any risk of lowering the standard of higher education; unless, indeed, our American youth are supposed to have much less capacity for attainment, and so much less maturity of judgment, that they cannot be trusted at twenty or twenty-one with the freedom accorded to the German student at eighteen or nineteen."—*Prof. Frieze's Report.*

It may be answered that many colleges are now doing, during the last two years, or during the post-graduate course, substantially this special work. Do not college students, in these elective courses, read harder Greek and Latin, and work more difficult problems in mathematics and physics? They do, indeed, but mainly according to college methods. The aim is not to lead the student to carry out a line of investigation by himself; he is not taught or encouraged to repeat the work of the original investigator. It is too much a continuance of the old system, — hearing of recitations, the mastery of the text-book. A question in physics practically elucidated, geology studied with the hammer in hand, a text critically examined, would be a powerful incentive to personal research, and would be worth more to the student at the age of twenty, — the age at which this course of study ought to be completed, — than any amount of instruction. It would, in fact, infuse a new life into college work, and give in a measure that practical and useful training which is the one increasing demand of the age. What student of history does not know how a thorough knowledge of one period, gained by original research, helps to the mastery of another? The student who has worked in this way gains a certain historical tact which enables him to deal almost as a master, even with those periods on which he has not brought original research to bear. What a travesty on all true learning is the study of history as now pursued in our colleges, consisting as it does of a few recitations from a text-book and of a few lectures that really have little matter in them to spur the student to original investigation.

It can with truth be urged that many colleges have opened to students, without success, just these very courses suited to modern ideas of education. As early as 1826 Amherst College provided, "in addition to its present classical and scientific four-years' course,* a new course equally thorough and elevated, but distinguished from it by a more modern and national aspect, and by a better adaptation to the taste and future pusuits of a large class of young men, who aspire to the advantages of a liberal education." The modern languages were substituted for Latin and Greek, and greater attention was to be given to practical mechanics, chemistry, and modern history. About the same time Yale adopted a similar course, while Harvard, in order to meet the supposed wants of special students, opened the doors of the University "to persons who are not candidates for a degree, but desire to study in particular departments only." "It was expected that a large body of students would be attracted to Cambridge by these concessions, but during sixteen years only eighteen students availed themselves of these advantages." After the failure of their experiment, the elective system was introduced with equally confident expectations, but many colleges soon fell back to "their old and approved ways of a fixed, uniform, and classical curriculum." About 1850 a revolution was effected in the constitution of Brown University, radical enough, it would seem, to satisfy the demands of modern education. "The fixed term of four years, or any other term," says the report, "is abandoned, and every student is allowed to pursue as many or as few courses of study as he may choose, subject to certain limitations. Persons are to be admitted to studies of several courses, if prepared to pursue these only." There was no general examination for admission. Great results were expected, and the speedy downfall of the old scholastic system was confidently predicted. The expectations were not realized, and the words that Dr. Wayland has written in regard to the changes at Amherst and Harvard were destined to be realized: "The colleges, so far as I know, which have obeyed the suggestions of the public, have failed to find themselves sustained by the public. The means which it was supposed would increase the number of students has, in fact, diminished it; and thus things gradually, after a variety of trials, have generally tended to their original constitution. So much easier is it to point out evils than to remove them. And thus have we been taught that the public does not always know what it wants, and that it is not always wise to take it at its word."

Is it not, in view of the facts, a little remarkable that the Institute of Technology, the Rensselear Polytechnic Institute, and the Columbia School of Mines have opened to students special courses analogous to those that have proven failures in the colleges, with a success so marked and gratifying that the colleges have again been compelled to reintroduce courses similar to those once abandoned, and to allow the largest liberty to electives? Harvard college, after once abandoning the elective system, has a second time adopted it on the most liberal scale, and now advertises "that its studies are largely elective." Does it not seem absurd for a college, in obedience to the practical spirit of the age, to establish special courses of study in the modern languages, and then adopt methods of teaching by which the student can never acquire facility in reading and speaking those languages nor any large acquaintance with the literature, thus defeating the very aim in view? Then, again, would it not be still more repulsive if methods that have already proved failures in teaching the classics should be applied to the modern languages, and the "grindstone" theory be set up, that these studies, too, are chiefly useful as mental gymnastics? Practical courses of study can be of but little utility unless followed by practical methods of instruction, — in the languages, by conversation, by writing, by reading so much that "ponies" will be drowned out by the very quantity of the text; in the sciences, after the leading principles and truths are comprehended, by scientific and technical instruction, by laboratory work, by personal research, by repeating the process of the original investigation; — such methods could not fail to give the students vital, quickening, practical knowledge. The statement recently made, that the students of political economy in one of our universities were at work on the report of the Secretary of the Treasury of the United States, produced quite a sensation. And yet this kind of work, after the preparatory studies are completed is indispensable if the student is ever to gain that keen perception, that firmer grasp, that more exact knowledge which will always evade him in his school-boy tasks of hearing recitations; for the mind is roused and stimulated by questions, not by answers. The essential thing in education is to offer problems to the student without a solution, — problems that will demand some genuine exertion of his own faculties, an exertion that will improve his mind and make his work delightful.

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* See "Porter's American Colleges and the American Public," p. 11 ff.

We have all the materials from which to organize a system of instruction that would in time equal that of any other country, but as matters are now managed the waste of time is ruinous and must eventually break down our college system. The need, at present, is organization and better methods of instruction. It is not necessary to separate the university from the college, but each one of our best colleges might, after the preparatory work is done, make all studies elective, as Michigan University has done, enlarge the course, — and by that I do not mean merely to increase the number of studies, — giving opportunities to pursue special lines of study in the classics, in history, in politics, in political economy, in physics, etc. The result would be that, instead of an indiscriminate selection of electives as at present, which really leads to nothing, the student would give his whole time to those special studies that would prepare him for some particular profession, as that of journalist or of chemist, or of physicist, or of teacher of Latin and Greek ; but a diploma in the classics would not enable one to secure a position to teach mathematics. Such an arrangement as I have described would save several years, — unless the student, as too many do at present, enter upon his professional studies without the preparatory training, — and enable the student to complete his business or professional studies at the age of twenty, as he certainly ought to do. Besides, such special training would show that a college education is not only desirable but indispensable to one who hopes to compete successfully in these professions just enumerated. It may seem to some that the course I have described would open the door to greater confusion, and more bewildering complications than at present prevails in the over-crowded curriculum of most colleges, and encourage the student in a still wider range of electives ; but there would be all the time an effectual check on the student in the increase of the standard for a degree in these special courses.

The special work in classics, in history, in politics, etc., that I have in view might be very much facilitated by the establishment of seminaries similar to those connected with the German universities, in which the professor personally encourages and directs a limited number of students in special lines of investigation. It is really in these seminaries that the student catches the liberal spirit of the place, and feels the incentive to untried exertions, which the contact with superior minds always awakens. Our college and university work might also be very much facilitated by the organization of societies such as are found at every German university, to afford opportunities to acquire facility in speaking Latin, the modern languages, and for a critical study of their formation and structure, as well as for special work in history, political science, etc.

These methods of instruction, this work in special lines of study, these changes in college and university organization, if once set in operation, would react upon our whole school system. We should then no longer find instructors teaching the languages who have prepared themselves to teach astronomy, or, as it now sometimes happens, who have never prepared themselves to teach anything. The effect of these changes would be so beneficial that our whole school system would eventually be lifted to that point where our present standard of admission to college, — which is so high, or, as Stewart Mills puts it, "the preliminary work is so poor," that the average age of candidates has reached a limit which all experience shows ought not to be exceeded; ought not, in fact, to be retained, — would not, after all, be such a superhuman thing.

I do not wish to be understood as casting blame on professors and presidents of our colleges for not doing more. With their present amount of work it is impossible to reach the standard I have in view. A German professor has a specialty with seven hours' work during the week, while an American professor is not only overloaded with work, but that too in several lines of study. Still, with the present facilities, something could be done. It is a pity that no New-England college should open the way for special lines of study to be pursued systematically under first-rate instruction, and, at the same time, bring the college into more intimate connection with the whole school system by establishing a department of Pedagogy. To learn what a wise system* of organization can accomplish, we have but to look to Michigan University,—which is fast moving towards its ideal, the first university in America, — in which the whole educational system ends, supplemented by a course in pedagogy.

No one who has considered the matter can doubt that the thorough qualifications so needful and desirable in a teacher can be produced, cultivated, and refined only by a careful, theoretical, and practical training, — such a training as, with proper organization, is within the power of our best colleges to give. "The art of teaching," says Mr. Stanton in his report on the School Inquiry Commission, "no more comes by instinct than the art of healing; and it is a grievous mistake for any one to suppose, because he himself is educated, that therefore he is qualified to teach others." There is, at present, no more pressing need, — one that is endangering our whole system of education, — than to have these truths recognized by insisting that every teacher should be properly and thoroughly trained in the theory and practice of his profession. No profession ought to stand more upon its merits than that of teaching, and to make its standard so high as not to be partly usurped by any other profession, or to be invaded by tyros and pretenders. Division of labor, necessary in every department of life, is indispensable here, if thorough efficiency is to be the result. It is true that the line is now pretty sharply drawn between the real educational artist and the tyro, but education is not yet a distinct profession. Colleges could wonderfully help on the work of scientific education by a course in pedagogy, and at the same time place themselves in sympathy with the whole system of education, which would return to them a harvest of untold riches.

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* The necessity for three grades, — the grammar school, the high school, and the college, — in our system of education has generally been recognized by the best educators. This is substantially the position that Dr. Barnard takes. The university, when organized, will form the fourth grade, and really supplement the whole system.

The Government could interfere here with advantage. No lawyer, no doctor, no teacher of a high school, no professor, ought to be allowed to undertake the duties of his office without having completed, at least, a limited university course and passed its examination. Again, none but real colleges and universities should be allowed to call themselves such. "The Government has precisely the same right to forbid an ordinary college, — one that in thoroughness and completeness of its course of study falls far below a German gymnasium, — from calling itself a university, that it has to prevent one from traveling over the country as Secretary Evarts, and thus securing the various advantages which might accrue to him from representing himself as the honorable Secretary of the United States." *

The reorganization of such a vast system may seem to many people chimerical, but the plan I have sketched would work gradually from the top downward. Better and more practical methods of instruction, combined with earlier specialization, would give an impetus to the whole system that before many years would be felt in the remotest village school. The more one studies the educational problem, the more one investigates the ways and means of educational success and progress, the more certain is he to come back to the elementary conclusion embodied in the trite maxim, "As is the teacher so is the school." There is no conceivable substitute for incompetency in the teacher; hence the essential test of a school system is to be looked for in the quality of its teachers. Is it business-like that, in our present system of education, there is no opportunity throughout the length and breadth of New England for teachers in the higher departments to prepare themselves adequately for their work? There will never be a full degree of satisfaction with the results accruing from our system of education, there will never

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* See a valuable article, by Richard T. Ely, on American Colleges and German Universities.

tion,—have boldly adopted German universities as their model. Hence we too often see college and university methods of instruction jumbled together, with little comprehension of the work which either is fitted to accomplish. Even if we grant that the aim of our colleges is the same as that of the German universities, we ought to be cautious in accepting them as models of college government and instruction, or in regarding their methods of training and discipline as applicable in all respects to our life, particularly when such men as Von Sybel, Lange, Curtius, and others find so much even in their system of education. Still it would be a great gain if, in adopting German universities as our models, we could at the same time introduce German methods of instruction, — the ability, the thoroughness, the patience of the German professor. The German student leaves the gymnasium at about the same age that the American student enters college.[*] It is true that, so far as mathematics and physics are concerned, the German gymnasium does not present so full a course as the American college, but in other departments the instruction is much more thorough and complete; *i. e.*, in Germany the preparatory drill is completed in the gymnasia in a better manner and four years earlier than in the preparatory schools in this country. At the university the German student enters at once upon university-work, — the technical and professional training, — as the real preparation for life. Some of our colleges realizing such facts as these have attempted to remedy the evil they disclose by carrying on university work by college methods, but the results thus far have not been gratifying. President Porter,[†] in some interesting papers on the theory and administration of college education, finds the root of the evils in our system of college education in the preparatory schools, — in poor instruction and consequent insufficient preparation for college. It would seem that he overlooks for the moment what all educational experience teaches,—that educational improvements work from the top downward, and, hence, the sure way of improving and elevating the preparatory schools is to apply the remedy first in the colleges. Education is everywhere what the college or university makes it.

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Of late years, in order to give some scope to this faculty of selection, or perhaps with the idea that a college would become a university if the catalogue offered a great variety of courses, there has been a crowding of a vast multiplicity of studies into the college curriculum,—some elective, some compulsory, but of nearly all of which the student is expected, at one time or another, to get a smattering. When we reflect that these "increased facilities" have been offered to the detriment of more thorough and extensive work in special lines of study, it would be well to inquire if the old curriculum had not its advantages, if not in what it did, certainly in what it left undone. It did not, at least, prevent individual expansion by compelling or encouraging the student to dissipate his time in too wide a range of studies. Then, again, we ought to disabuse our minds of the idea that has been of late years too prevalent, that a college can be converted into a university by simply increasing the number of studies and the variety of courses. A university, to be such in reality, must do university work by university methods.

I would solve the difficulty by separating distinctly,—and the bifurcation, as Matthew Arnold calls it, should come at the end of the second college year,— college education and university education.* Their aims and methods are different; the office of the college being to give instruction in prescribed studies, while the university offers a business and professional training. As matters are now managed every college attempts university work in its various elective courses, and that by college methods, and the result has been, and must always be, a failure. Our better colleges could then with advantage, in a two-years course, return to their former aims, which have been too hastily abandoned, of giving an intellectual training which is desirable for every one, whatever is to be his business or profession. The smaller colleges and most of the so-called "universities" should devote themselves to the more modest but more useful work of becoming high schools. In the colleges proper there would then be, at the end of the second year, a line drawn between college work and university work, between college methods and university methods; on one side of which preparatory work and elementary methods, carried out with vigor and thoroughness, should prevail, to be superceded by scientific methods, by personal research in special lines of study, by personal communion with sources. The lack of opportunities to pursue special courses in the classics, in history, in politics, in political economy, in physics, in mathematics,—a want deeply felt among a large and constantly increasing class of students,—is yearly sending thousands to foreign universities. Where in the United States can a teacher prepare himself thoroughly to give instruction in Latin, or in history, or in political economy? The ordinary college-training is far from sufficient, The Germans require their teachers of the classics to pursue Latin and Greek as a specialty for four years after completing the course in the gymnasium, which as a classical school ranks with our best colleges.

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* Since writing the above I have received the Report of Michigan University to the Board of Regents, from which I quote the following: "In the Michigan system, for the present at least, the secondary education must be completed, not in the high school, but in the university; and end with the 'required studies,' or about two years after matriculation. The age at which the youth of Michigan pass from the secondary to the higher work in the university is a little upward of twenty. Thus they are about two years older than the German student at the same stage of education. There is, therefore, no reason to fear that in giving our students at this point perfect university privileges, that is,—perfect freedom in choice of studies and amount of work,—we incur any risk of lowering the standard of higher education; unless, indeed, our American youth are supposed to have much less capacity for attainment, and so much less maturity of judgment, that they cannot be trusted at twenty or twenty-one with the freedom accorded to the German student at eighteen or nineteen."—*Prof. Frieze's Report.*

It may be answered that many colleges are now doing, during the last two years, or during the post-graduate course, substantially this special work. Do not college students, in these elective courses, read harder Greek and Latin, and work more difficult problems in mathematics and physics? They do, indeed, but mainly according to college methods. The aim is not to lead the student to carry out a line of investigation by himself; he is not taught or encouraged to repeat the work of the original investigator. It is too much a continuance of the old system, — hearing of recitations, the mastery of the text-book. A question in physics practically elucidated, geology studied with the hammer in hand, a text critically examined, would be a powerful incentive to personal research, and would be worth more to the student at the age of twenty, — the age at which this course of study ought to be completed, — than any amount of instruction. It would, in fact, infuse a new life into college work, and give in a measure that practical and useful training which is the one increasing demand of the age. What student of history does not know how a thorough knowledge of one period, gained by original research, helps to the mastery of another? The student who has worked in this way gains a certain historical tact which enables him to deal almost as a master, even with those periods on which he has not brought original research to bear. What a travesty on all true learning is the study of history as now pursued in our colleges, consisting as it does of a few recitations from a text-book and of a few lectures that really have little matter in them to spur the student to original investigation.

It can with truth be urged that many colleges have opened to students, without success, just these very courses suited to modern ideas of education. As early as 1826 Amherst College provided, "in addition to its present classical and scientific four-years' course,* a new course equally thorough and elevated, but distinguished from it by a more modern and national aspect, and by a better adaptation to the taste and future pusuits of a large class of young men, who aspire to the advantages of a liberal education." The modern languages were substituted for Latin and Greek, and greater attention was to be given to practical mechanics, chemistry, and modern history. About the same time Yale adopted a similar course, while Harvard, in order to meet the supposed wants of special students, opened the doors of the University "to persons who are not candidates for a degree, but desire to study in particular departments only." "It was expected that a large body of students would be attracted to Cambridge by these concessions, but during sixteen years only eighteen students availed themselves of these advantages." After the failure of their experiment, the elective system was introduced with equally confident expectations, but many colleges soon fell back to "their old and approved ways of a fixed, uniform, and classical curriculum." About 1850 a revolution was effected in the constitution of Brown University, radical enough, it would seem, to satisfy the demands of modern education. "The fixed term of four years, or any other term," says the report, "is abandoned, and every student is allowed to pursue as many or as few courses of study as he may choose, subject to certain limitations. Persons are to be admitted to studies of several courses, if prepared to pursue these only." There was no general examination for admission. Great results were expected, and the speedy downfall of the old scholastic system was confidently predicted. The expectations were not realized, and the words that Dr. Wayland has written in regard to the changes at Amherst and Harvard were destined to be realized: "The colleges, so far as I know, which have obeyed the suggestions of the public, have failed to find themselves sustained by the public. The means which it was supposed would increase the number of students has, in fact, diminished it; and thus things gradually, after a variety of trials, have generally tended to their original constitution. So much easier is it to point out evils than to remove them. And thus have we been taught that the public does not always know what it wants, and that it is not always wise to take it at its word."

Is it not, in view of the facts, a little remarkable that the Institute of Technology, the Rensselear Polytechnic Institute, and the Columbia School of Mines have opened to students special courses analogous to those that have proven failures in the colleges, with a success so marked and gratifying that the colleges have again been compelled to reintroduce courses similar to those once abandoned, and to allow the largest liberty to electives? Harvard college, after once abandoning the elective system, has a second time adopted it on the most liberal scale, and now advertises "that its studies are largely elective." Does it not seem absurd for a college, in obedience to the practical spirit of the age, to establish special courses of study in the modern languages, and then adopt methods of teaching by which the student can never acquire facility in reading and speaking those languages nor any large acquaintance with the literature, thus defeating the very aim in view? Then, again, would it not be still more repulsive if methods that have already proved failures in teaching the classics should be applied to the modern languages, and the "grindstone" theory be set up, that these studies, too, are chiefly useful as mental gymnastics? Practical courses of study can be of but little utility unless followed by practical methods of instruction, — in the languages, by conversation, by writing, by reading so much that "ponies" will be drowned out by the very quantity of the text; in the sciences, after the leading principles and truths are comprehended, by scientific and technical instruction, by laboratory work, by personal research, by repeating the process of the original investigation; — such methods could not fail to give the students vital, quickening, practical knowledge. The statement recently made, that the students of political economy in one of our universities were at work on the report of the Secretary of the Treasury of the United States, produced quite a sensation. And yet this kind of work, after the preparatory studies are completed is indispensable if the student is ever to gain that keen perception, that firmer grasp, that more exact knowledge which will always evade him in his school-boy tasks of hearing recitations; for the mind is roused and stimulated by questions, not by answers. The essential thing in education is to offer problems to the student without a solution, — problems that will demand some genuine exertion of his own faculties, an exertion that will improve his mind and make his work delightful.

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* See "Porter's American Colleges and the American Public," p. 11 ff.

We have all the materials from which to organize a system of instruction that would in time equal that of any other country, but as matters are now managed the waste of time is ruinous and must eventually break down our college system. The need, at present, is organization and better methods of instruction. It is not necessary to separate the university from the college, but each one of our best colleges might, after the preparatory work is done, make all studies elective, as Michigan University has done, enlarge the course, — and by that I do not mean merely to increase the number of studies, — giving opportunities to pursue special lines of study in the classics, in history, in politics, in political economy, in physics, etc. The result would be that, instead of an indiscriminate selection of electives as at present, which really leads to nothing, the student would give his whole time to those special studies that would prepare him for some particular profession, as that of journalist or of chemist, or of physicist, or of teacher of Latin and Greek; but a diploma in the classics would not enable one to secure a position to teach mathematics. Such an arrangement as I have described would save several years, — unless the student, as too many do at present, enter upon his professional studies without the preparatory training, — and enable the student to complete his business or professional studies at the age of twenty, as he certainly ought to do. Besides, such special training would show that a college education is not only desirable but indispensable to one who hopes to compete successfully in these professions just enumerated. It may seem to some that the course I have described would open the door to greater confusion, and more bewildering complications than at present prevails in the over-crowded curriculum of most colleges, and encourage the student in a still wider range of electives; but there would be all the time an effectual check on the student in the increase of the standard for a degree in these special courses.

The special work in classics, in history, in politics, etc., that I have in view might be very much facilitated by the establishment of seminaries similar to those connected with the German universities, in which the professor personally encourages and directs a limited number of students in special lines of investigation. It is really in these seminaries that the student catches the liberal spirit of the place, and feels the incentive to untried exertions, which the contact with superior minds always awakens. Our college and university work might also be very much facilitated by the organization of societies such as are found at every German university, to afford opportunities to acquire facility in speaking Latin, the modern languages, and for a critical study of their formation and structure, as well as for special work in history, political science, etc.

These methods of instruction, this work in special lines of study, these changes in college and university organization, if once set in operation, would react upon our whole school system. We should then no longer find instructors teaching the languages who have prepared themselves to teach astronomy, or, as it now sometimes happens, who have never prepared themselves to teach anything. The effect of these changes would be so beneficial that our whole school system would eventually be lifted to that point where our present standard of admission to college, — which is so high, or, as Stewart Mills puts it, "the preliminary work is so poor," that the average age of candidates has reached a limit which all experience shows ought not to be exceeded; ought not, in fact, to be retained, — would not, after all, be such a superhuman thing.

I do not wish to be understood as casting blame on professors and presidents of our colleges for not doing more. With their present amount of work it is impossible to reach the standard I have in view. A German professor has a specialty with seven hours' work during the week, while an American professor is not only overloaded with work, but that too in several lines of study. Still, with the present facilities, something could be done. It is a pity that no New-England college should open the way for special lines of study to be pursued systematically under first-rate instruction, and, at the same time, bring the college into more intimate connection with the whole school system by establishing a department of Pedagogy. To learn what a wise system* of organization can accomplish, we have but to look to Michigan University,—which is fast moving towards its ideal, the first university in America, — in which the whole educational system ends, supplemented by a course in pedagogy.

No one who has considered the matter can doubt that the thorough qualifications so needful and desirable in a teacher can be produced, cultivated, and refined only by a careful, theoretical, and practical training, — such a training as, with proper organization, is within the power of our best colleges to give. "The art of teaching," says Mr. Stanton in his report on the School Inquiry Commission, "no more comes by instinct than the art of healing; and it is a grievous mistake for any one to suppose, because he himself is educated, that therefore he is qualified to teach others." There is, at present, no more pressing need, — one that is endangering our whole system of education, — than to have these truths recognized by insisting that every teacher should be properly and thoroughly trained in the theory and practice of his profession. No profession ought to stand more upon its merits than that of teaching, and to make its standard so high as not to be partly usurped by any other profession, or to be invaded by tyros and pretenders. Division of labor, necessary in every department of life, is indispensable here, if thorough efficiency is to be the result. It is true that the line is now pretty sharply drawn between the real educational artist and the tyro, but education is not yet a distinct profession. Colleges could wonderfully help on the work of scientific education by a course in pedagogy, and at the same time place themselves in sympathy with the whole system of education, which would return to them a harvest of untold riches.

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* The necessity for three grades, — the grammar school, the high school, and the college, — in our system of education has generally been recognized by the best educators. This is substantially the position that Dr. Barnard takes. The university, when organized, will form the fourth grade, and really supplement the whole system.

The Government could interfere here with advantage. No lawyer, no doctor, no teacher of a high school, no professor, ought to be allowed to undertake the duties of his office without having completed, at least, a limited university course and passed its examination. Again, none but real colleges and universities should be allowed to call themselves such. "The Government has precisely the same right to forbid an ordinary college, — one that in thoroughness and completeness of its course of study falls far below a German gymnasium, — from calling itself a university, that it has to prevent one from traveling over the country as Secretary Evarts, and thus securing the various advantages which might accrue to him from representing himself as the honorable Secretary of the United States." *

The reorganization of such a vast system may seem to many people chimerical, but the plan I have sketched would work gradually from the top downward. Better and more practical methods of instruction, combined with earlier specialization, would give an impetus to the whole system that before many years would be felt in the remotest village school. The more one studies the educational problem, the more one investigates the ways and means of educational success and progress, the more certain is he to come back to the elementary conclusion embodied in the trite maxim, "As is the teacher so is the school." There is no conceivable substitute for incompetency in the teacher; hence the essential test of a school system is to be looked for in the quality of its teachers. Is it business-like that, in our present system of education, there is no opportunity throughout the length and breadth of New England for teachers in the higher departments to prepare themselves adequately for their work? There will never be a full degree of satisfaction with the results accruing from our system of education, there will never

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* See a valuable article, by Richard T. Ely, on American Colleges and German Universities.

be genuine support and confidence from the public, until the same business-like methods, the same energy, and modern ideas, are introduced into our methods of instruction and organization that pervade the world's work in other departments.

I have but little time left to ask your attention, in conclusion, to one other defect which pervades our whole school system, and which if remedied would go far in helping on that practical, political, or national education which the spirit of the age so imperatively demands; viz., the almost total neglect of the study of history. Here, again, our colleges are directly responsible; for in none of them is there any instruction in history worthy of the important position that this subject ought to occupy.

Polybius begins his great work by advising all mankind to apply themselves with earnestness to the study of history, since the knowledge of past events affords the best instruction for the regulation and good conduct of human life, and particularly *because history supplies the only proper discipline to train and exercise the mind of those who are inclined to enter into public affairs.* In a country like ours, where every citizen is interested in political affairs, one of the primary aims of education, it would seem, ought to be to equip the future citizen, to prepare him at least to follow, with some degree of intelligence, the march of contemporary events; to teach him, as Persius says, "his position in the great republic of man." Now the classics, if properly studied, give a certain gift of speech, grace of thought, and insight into modern thought and speculation, because these have their root in ancient thought and speculation; the physical sciences train the powers of observation; mathematics and philosophy have in the general scheme of education a useful and proper office to perform; but with the help derived from all of these, who has not wished, in the midst of the momentous social and political changes that are going on around him, — changes in which the most humble must take a part, whether he knows it or not, — who has not wished that his powers of observation had been trained and the keenness of his perceptive faculties sharpened by a thorough study of the political and social questions that have agitated other times? To-day theories are being proposed which have long since been extinguished in blood, — and legislation is being enacted which the slightest knowledge of the past experience of mankind would show must end in failure. There are in this country great social and financial questions pressing to the front; problems are arising as fearful as those that have deluged nations in blood, — the right of minorities, the necessity for industrial education, and the relation of capital to labor, which, as the low mutterings of poverty increase, will assume tremendous proportions. The question is, Shall problems of such fearful moment to the weal or woe of this land be decided by men trained to a knowledge of past failures and experiences, which affords the best guarantee of future success, or shall we pay the penalty that progress has cost in other lands? Fortunately there are studies that throw a light on these great social and political problems, — studies that give us the thread in the labyrinth of human affairs, — studies that afford valuable suggestions and help for the regulation and guidance of human life. The oracle pronounced Socrates the wisest of men because he made man the object of his study. The sciences deal with matter, history deals with man. History teaches more of man: it gives us a glimpse of the path along which the race has traveled to its present position; it is a chart for him who reads to guide him in his journey through life. To one thoroughly versed in the past experiences of the human race, the social and political changes of the present no longer seem capricious, for he can refer them to certain laws almost as definite and certain as that of gravitation. Hence the tendency of historical studies is to eliminate from life wild and visionary schemes, and give a stability and fixedness of purpose.

History, then, ought to occupy a high place in the work of education. Let me not, however, leave the impression that we have but to study the past to judge the present, — to read of the revolutions in past ages to explain ours. History *is* the instructress of the present, but not in the narrow sense that we have but to turn over the records of past centuries and collect from these the materials for a political diagnosis and the specifics for a prescription. "History is instruction," says Mommsen, "only so far as the study of earlier forms of culture reveal the condition of society, — the fundamental forces always alike, the manner of their combination everywhere different, — and encourages independent reproduction not unreflecting imitation." . . . .

The interest of history, then, centers mainly in the inner life of a community, in the study of those intellectual and moral forces of which all else is but the expression. Here, however, many phenomena, — political, economical, educational, social, commercial, — present themselves for study, and all deserve careful and considerate attention. It is not possible for one to be proficient in all these departments, and hence the province of history for the large mass of students certainly, after they have once traversed its outline, must be still further narrowed. Does not the principle of utility, nay of necessity, enter here and determine the direction our investigations ought to take? The fact that every citizen in this country has a share in determining the policy of the government, demands that some preparation shall be the indispensable requisite for citizenship. The study of that part of history which treats of political institutions or of politics, using the word in the broad and comprehensive sense given to it by Aristotle, would furnish precisely the preparation needed to fit every one to take, as he ought, an active interest in politics. "We alone regard the man," said Pericles, "who takes no interest in politics not as a quiet and harmless citizen, but as a useless one." But how can one take an intelligent interest in measures determining the future policy of the government, if he has no knowledge of past measures and policies? How much the study of political history or politics would help in this work of intelligent citizenship, — in revealing the false theories that are preying upon society, and in warning us to shut our doors against a multitude of "isms." And yet how little our colleges and schools do to promote the study of this important branch of learning, which is so indispensable to good citizenship. Hardly half a dozen of our colleges have a chair of history, and not one teaches United States history thoroughly. The result is that this important branch of education is completed by memorizing a few names and dates before admission to college, and then by forty or fifty recitations and a few lectures on ancient and modern history, which too often are merely "superficial expositions of results by a speaker who himself understands them imperfectly, to the intent that his hearers may be able to talk about them without understanding them at all." If one wishes to study even the history of the United States as a specialty he must go abroad, for as yet no one has made so thorough and exhaustive a study of our political history as Von Holst has done.

There was a time when this college formed a marked and praiseworthy exception to this general neglect of historical studies. History, at one time, held here the first rank. There was certainly no feature of our college training, much as we prize it all, to which the older graduates look back with a more lively sense of appreciation and gratitude than to the interesting course of historical studies, which seemed at that time extensive and comprehensive in comparison with the meagre and unsatisfactory opportunities in this department offered by other colleges. I have never yet heard any satisfactory reason for the discontinuance of this historical course. It was a study the delight of which we have always carried with us. *Pernoctat nobiscum, peregrinatur, rusticatur.*

If the student of the natural sciences is reminded, as he walks in the fields and along the road, of his favorite study, and of that beloved teacher,* — *serus in cœlum redeas,* — who guided him in these researches, neither can the student of history efface from his memory the precepts of that revered and honored man,† — *requiescat in pace,*— who, like Socrates, knowing nothing himself, yet guided others to knowledge by his gentle suggestions and searching interrogations.

The proper study of history lights up the political world of the present and past, disclosing a rich store of human experience and conduct which we may use for our own guidance if we will but avail ourselves of these treasures. Who can doubt that if our colleges and schools have taught theories, during the past twenty years, the principles of good government and correct, of finance with the same zeal and energy as they have the technical principles of English and Latin grammar, that a much smaller number would have been carried away by the false theories and pernicious heresies that have swept like wild-fire over our country in recent years. Now the study of history, that part of it relating to political institutions, — or the practical study of politics, as Aristotle calls it, — would furnish precisely the training necessary to grapple with such financial and social heresies. Particularly a critical and thorough study of the history of our own country, which could not fail to have an enlarging, ennobling, stimulating, inspiring influence, — for we have a history quite as suggestive as that of ancient Greece and Rome, — would furnish that national education, that preparation for intelligent citizenship so imperatively demanded by the age. This knowledge of politics and party measures, so essential to the well-being of any free government, would make still stronger those forces that, working through the public schools, have already been so potent in eliminating differences of birth, creed, and sectional feeling, and of imparting that homogeneity of purpose and love of law and good government which will make these States "one and inseparable, now and forever."

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* John P. Marshall, formerly professor of Chemistry and the Physical Sciences, now professor of Geology and Mineralogy.

† Hosea Ballou, 2d, the first president of Tufts College, and professor of History.

JOHN HOWARD RAYMOND.

John Howard Raymond, late president of Vassar College, whose portrait is the frontispiece of this number of Education, was born March 7, 1814, in the city of New York. From an autobiographical sketch of his early life, found incorporated in the admirable memoir of his life, edited by his eldest daughter, we gather some interesting facts of his boyhood, school and college life. He was sent to school when three years of age, and from that time had never been out of school except on regular vacations; passing without intermission from pupil to teacher, tutor, professor, and president of a college. In his library was found a time-worn copy of Goold Brown's grammar, which bears this inscription: "This book I studied thoroughly and (considering my age) understandingly, under the instruction of the author, in the winter of 1823–24 when I was between nine and ten years old; it was the foundation of all the intellectual discipline I ever had." This explains the enthusiasm with which he always expatiated upon the importance of a thorough study of language. He was a firm believer in the importance of Latin as a fundamental study in a course of instruction. Of his boyish life he writes, that it presents itself to the eye of recollection under a two-fold aspect: the first, a winter life, pent up in city walls, and under the eye of severe domestic and scholastic discipline, the life of . . . . "whining school-boy with his satchel, and shining morning face, creeping like a snail unwillingly to school;" the other, a joyous, free, and happy summer life, amid green fields and under genial skies. The homestead of his paternal ancesters was in the town of Norfolk, Ct., where he spent the golden summer months in country sports. He was exceedingly averse to many out-door sports, but says he, "could swim like a duck," "could not jump the length of my leg, nor run as fast as a smart kitten;" "never raised a kite in my life;" "wrestling was my abhorrence," "and as to actual fighting, my discretion was always of more service to me than my valor." He was much more interested in those games and amusements which required invention and manual skill rather than agility or strength. Of his first teacher he did not have any pleasant memories. He says "the feature in her education which was most *striking* at the time, and has left the deepest impression, was the frequent and smart application of her thimble-shod middle finger to the susceptible crania of her pupils, to the manifest multiplication of their cerebral organs." His next teacher, who was a cripple, "performed the same philosophical operation with his crutch, used hammerwise." At eight years of age he was transferred to the classical school of Goold Brown, the well-known author of grammars, — who was a Quaker, and a "jewel of a pedagogue." He says he "left this school with my head full of Brown's Institutes, and my doom sealed beyond redemption. I was a predestinate 'professor of English grammar.'"

He spent a year at Hamilton Academy, where he began the study of Latin. During this year of his life he lost his much-loved mother, which deeply affected him. Later he became a student at the New York high-school, where he remained until the fall of 1828 when he entered the freshman class of Columbia College, in the city of New York, which was noted for the excellence of its classical course. His life in Columbia was in many respects unpleasant, and before graduating he sought admission to Union College, at Schenectady, N. Y., and was admitted to the second term of the senior year. His room-mate was seized with small-pox, and he left for home, having obtained leave of absence and permission to commence and pursue the study of law during the balance of his course. Owing to the appearance of cholera there was no commencement at Union that year, but during the ensuing autumn his diploma was sent to him. He says, "The sheep-skin trophy of my victory was lost within twenty-four hours after its reception." "I remember taking it home and throwing it on a table in the hall, and that was the last of it." He further adds: "This is not the age or the country in which a piece of parchment, disfigured with bad Latin, bad engraving, and bad penmanship, can add dignity to one's character or weight to one's influence, or in which the want of it will exclude one from any field of honorable labor to which his personal qualifications adapt him. With us the *fact* is everything, the *symbol* nothing or next to nothing. And so far, at least, as my own observation extends, men get along now-a-days by exhibiting, not *testimonials*, but *abilities*."

At the age of eighteen, in the spring of 1832, he commenced reading law in the office of one of the most eminent business lawyers in New York (Seth P. Staples, Esq.) Here he remained until the fall of 1833, at the same time giving instruction to a limited number of private pupils in Brooklyn. During the following winter he went to New Haven to attend the Yale Law School, where he became deeply impressed by the great truths of religion, and after a searching investigation, recorded his fixed resolution "to embrace and act upon the truth." His consecration was complete, as shown by his subsequent life and character.

In the fall of 1835, after his conversion, he went to Hamilton, Madison Co., N. Y., first to study and then to teach in the Baptist Theological Seminary, where he spent fifteen years of his life. He became deeply interested in missionary work, and his letters show how earnest and enthusiastic he was to do good. After fifteen years at Hamilton, and a professorship of five years at Rochester University, he returned to his early Brooklyn home as president of the Polytechnic Institute. It was in July, 1855, that the degree of LL.D. was conferred upon Prof. Raymond by the University of Rochester, and his official connection with the institution ceased at that time. His work at Hamilton and Rochester was the period of his adult life, unmarked by sorrow or excessive care. In accepting the presidency of the Polytechnic Institute, he was compelled to bring into active exercise all of his reserved energies in outlining and developing the organization. In writing of the early days of the Polytechnic he says: "Never have I so felt the want of a power of ubiquity or self-multiplication." The plans he made for this institution were broad ; but a large proportion of those who entered the Institute desired an education that should fit them for mercantile and commercial rather than professional life, and Dr. Raymond was unable to carry his plans to that completeness which he desired. One feature of his management should have a passing notice. He rejected from the first all corporal punishment from its discipline. For twenty-five years the Brooklyn Polytechnic, with more than seven hundred pupils, has been under an exclusive moral control, and the sound of ignominious blows has never been heard within her walls.

Dr. Raymond's health began to decline under the arduous labors of his work, and in the spring of 1863 he accepted the invitation of his friend Henry Ward Beecher to accompany him on a trip to Europe, and the letters written during those three months of absence abound in references to the companionship which enhanced the delights of the trip. His letters to his wife and children reveal to us a husband and father of model excellence. From the day of his marriage at Angelica, N. Y., to the day of his death he was a faithful and devoted example of a Christian, in all his domestic relations. The bond that knit his heart to his children was made tender by many bereavements. His deepest happiness came through the affections of home, and through them came also his deepest sorrows. His daughter, in her memoir, says, " His very being seemed interwoven with every form of beauty, until all nature has come to seem a part of the beloved father's nature, that made life such a constant lesson of loveliness to his children." His discriminating love of art and the delicacy of his æsthetic taste was shown in the fondness he had for music, the uplifting and refining power of which he enjoyed with his family.

Our limited space only permits us to refer to Dr. Raymond's labors, in connection with Vassar College. Early in 1861 Mr. Vassar, the founder of the institution, appointed him a member of the first board of trustees, and his life blends, from that time, with the organization and development of Vassar College. He entered fully into the plans proposed by the founder, of establishing an institution which should be "to young women," what Yale and Harvard colleges were to young men, — furnishing them the opportunity of a *truly liberal education.* At this period there was not in all Christendom a single *endowed college* for young women. From the date of the first meeting of the board of trustees, Dr. Raymond showed a growing interest and sympathy in the enterprise, which was soon quickened into an earnest enthusiasm. He took an active part in the deliberations of the trustees, and in the spring of 1864 his name was mentioned by Prof. Jewett as the man best able to harmonize and adjust, to organize and animate this great undertaking. He had just offered his resignation at the " Polytechnic," hoping to secure complete rest from official labors, which the trustees of that institution declined to accept. The friends of Vassar were persistent, thinking his experience in the course of education, of thirty years (fourteen in the faculty of Hamilton, five at Rochester, and nine at the Brooklyn Polytechnic), fitted him eminently for the first presidency of the new college. After much deliberation and consultation with Mr. Vassar and others he finally sent the trustees, on June 10, 1864, his letter of acceptance of the position. He at once entered upon the delicate and difficult work of organization; and in sympathy with Mr. Vassar's views, the college was established on a broad catholic basis, not dependent for its support on any single religious denomination, but "to aid in the foundation of symmetrical, graceful, noble womanhood." On the 20th of September, 1865, the college opened with nearly three hundred students, many of whom were not fully prepared to enter upon a strictly college course. The work of classification of pupils and the regulations of departments and teachers was an enormous labor. Dr. Raymond persevered, and at the close of the third year the *provisional course of study* had finished its work and the regular college curriculum, upon which he had spent much laborious thought, was entered upon.

His faith in the capability of women to master the most difficult branches of study was tested, and forcibly illustrated, during the few first years of the college,—in astronomy under Dr. Mitchell, and in the classical languages, at that time under Prof. Robert. One of the students writes that "The enthusiasm felt by our class over the study of Greek was owing almost entirely to Dr. Raymond's influence." He always opposed the admission of non-collegiate students. This was his great point, and he strenuously insisted upon the college maintaining its strictly collegiate character. At the close of the first decade of the college, in 1875, Dr. Raymond found himself in greatly impaired health, and sought restoration once more in European travel, and was again greatly benefitted for a time; but the three subsequent years of constant care and labor sufficed to exhaust his strength. The commencement of 1878 was destined to be the last days of his public ministration. He entered with joyous zest into all the duties, social and official, of the work and, said he, "never have I been so thoroughly *satisfied* with a commencement."

Four days after the public exercises, he was taken ill, and sought relief at Saratoga, hoping the waters might restore him, but each day disappointed the hope, and he was brought back to the college at Poughkeepsie where he lingered among the friends he loved so tenderly, a few days, and then passed peacefully away. The last sentence he tried to utter was eminently characteristic of the man. It was broken and difficult to catch, but distinct in meaning. "How easy,—how easy,—how easy,—to glide from the work here to the work—" *there* he evidently wished to say, but utterance failed him. One of his gifted graduates at the Polytechnic Institute has truthfully estimated the life-record of this noble worker in education:

"Power without ambition, consecration without bigotry, enthusiasm without fanaticism, gentleness without timidity, perseverance without combativeness, dignity without pomp, mirth without frivolity, versatility without dissipation of energy, candor without uncertainty, and piety without cant."

He lived for others, and chose a work modest in character, but most important and useful; and his memory will grow through the generations, as the friend and wise guide of the young of his day.

FOREIGN.

GREAT BRITAIN.—ENGLAND.—In the recent report of the Council of the Senate of Cambridge University relative to the proposed Professorship of Animal Morphology, it is stated that the classes in biology are now so large that the accommodations provided a few years ago have become insufficient. This year there have been about 55 students in elementary morphology, and 20 in the advanced class; 70 students attend elementary physiology, and about 15 the advanced course. The recommendation that a Professorship of Animal Morphology should be established was carried by a grace of the Senate passed May 11, and on the 31st of the same month Mr. Francis Maitland Balfour, M.A., F.R.S., Fellow of Trinity College, was by a unanimous vote of the members of the electoral roll selected to fill the newly-established chair. Mr. Balfour's investigations in embryology and comparative anatomy have already placed him in the front rank of original workers in these branches of science, a distinction seldom attained at the early age of thirty-two years. It is well known that the teaching of animal morphology has been created in Cambridge by the efforts of Mr. Balfour, and that it has grown to its present importance through his ability as a teacher and his scientific reputation. It is provided that the new professorship shall terminate with the tenure of office of the professor first elected, unless the University shall decide upon its continuance. The stipend attached to the chair is £300 per annum.

The annual report of the Museums and Lecture Rooms' Syndicate at Cambridge gives a valuable record of work. In the department of experimental physics it appears that 62 students were attending the practical classes in the Lent term, doing work which few of the candidates for the mathematical or natural sciences triposes ever did at Cambridge before the establishment of the Cavendish Laboratory. The pupils in mechanism in Prof. Stuart's workshop numbered 36 during the past winter. In chemistry the increase in the students has considerably exceeded the accommodation available in the University laboratory, notwithstanding the existence of several college laboratories. Professors Liveing and Derrar plead strongly for further provision as regards both buildings and appliances, such as may bear comparison with those of Zurich and Bonn; they believe that to delay building until other departments can be adequately dealt with will be most detrimental to the present flourishing prospects of chemistry.

Oxford.—"The establishment of the Wayneflete Professorship of Physiology was provided for by the late University Commission, it being arranged that the emoluments of the post should be paid out of the funds of Magdalen College, to which college the professor is to be attached as a Fellow." "It is understood that Magdalen College, acting on the representations of the University to that effect, has determined to apply such surplus funds as are available at once to the foundation of the professorship, and it is expected that an election to the post will therefore take place shortly." The professor is required by the statutes to give instruction in Human and Comparative Physiology with Histology.

Technical Instruction.—The importance which the English government attaches to the subject of technical instruction was evidenced by the appointment of a Royal Commission in August, 1881, to investigate and report upon the methods and results of such instruction in other countries. The Commission has published a preliminary report embodying their observations in France upon the education of workmen as distinguished from foremen and proprietors. The commissioners regard with favor the addition of a workshop to elementary schools and advise that the experiment be tried in England. Though impressed by the operation of the French apprenticeship-schools, they are of the opinion that it would not be wise to attempt their introduction into England until they have been further tested in France. In art-teaching they declare that France is greatly in advance of Great Britain, and that the proportion of real working-men receiving practical art-instruction in France is greater beyond comparison than it is in the United Kingdom.

The acceptance by the Prince of Wales of the presidency of City and Guilds of London Institute for the advancement of technical education, is regarded as an auspicious event. Since the issue of the first annual report in 1881, the funds of the Institute have been augmented by contributions from eight additional companies, the grocers, skinners, vinters, etc.

The foundation-stone of Finsbury College was laid May 10, 1881, by Prince Leopold, and the foundation-stone of the Central Institute in July, by the Prince of Wales. Finsbury College will eventually accommodate the schools of Technical Chemistry, of Technical Physics, and of Applied Mechanics. Meantime, instruction is given in the temporary class-rooms of the Institute in the Cowper-street schools. It is expected that the Central Institution will be opened for work in 1884.

City and Guilds School of Technical Art.—During the past year the additional studios, for the erection of which a special grant of £750 was allowed, have been completed. The new studios afford room for the increased number of students who eagerly avail themselves of the system of art-teaching as applied to industrial work, which is pursued in this school. The number of students receiving instruction in the Art School is 119, of whom 52 are women.

Dr. Graham, professor of Chemical Technology at University College, reports that his instruction has embraced brewing, bread-making, heating and lighting, and metallurgy. Eight students, nominated by the Institute, were admitted to Professor Graham's lectures without payment of fees. Of these, four distinguished themselves at the technological examinations, and are now employed as chemists in large industrial works, and one is engaged in technical teaching.

The City and Guilds of London Institute afford facilities for carrying out an examination in any of the subjects enumerated in their program, wherever a class for instruction is formed, or a sufficient number of candidates present themselves, provided an approved local committee undertakes to carry out the examination according to the rules specified. The program for 1881–82 includes thirty-two subjects, arranged so as to group together under "allied industries." The examinations are in two grades, ordinary or "pass" and honors.

Grants to Teachers.—"With the view of encouraging the formation of classes for the study of technological subjects in towns where no college or school for technical education exists, in which evening instruction in these subjects adapted to artizans and others is already provided, the Institute is prepared to make payments, subject to the conditions laid down in the program, to duly registered teachers on the results of the examination of their pupils."

From this brief outline it will be seen that the Institute is prepared to exercise a determining influence in the development of technical education, and to make itself felt throughout the kingdom.

SCOTLAND.—Two measures affecting education in Scotland, recently introduced into Parliament, are watched with deep interest; namely, the Endowment Bill, and the Bill to regulate the procedure of School Boards, in the dismissal of teachers. The first has in view the wants of secondary education. A well-known feature of the Scottish system of education is the union of all its parts. Not secondary schools alone, but elementary, prepare boys for the universities, and it is the evident determination of the people to keep a highway to the superior institutions open to the humblest scholars. Nevertheless it is recognized that the means for secondary instruction are entirely inadequate. The Scottish Education Department proposes a graded system of schools with provision for higher instruction in one school in each district. It has also been suggested that secondary schools be established in central localities for the accommodation of the districts of several school-boards. However these propositions may be decided, it is plain that the funds for secondary education must be increased. It is stated that several single foundations in England, as Eton and Winchester, possess larger revenues than almost all the burgh schools and universities in Scotland, taken together. While poor in strictly education endowments, Scotland possesses great revenues in certain foundations that are classed as educational. Very little benefit is derived from these, and they have been the subject of several attempted reforms. Mr. Mundella's bill proposes the appointment of seven commissioners empowered to draft schemes for the reorganization of these endowments. The schemes will become subjects of legislation. The commissioners are directed to have special regard to making provision for secondary or higher education in Scotland, whether in the industrial arts, or as a preparation for commercial pursuits, or for the universities. They are also directed to extend to girls the benefit of endowments so far as can be conveniently done.

The Bill to regulate tenure of office is intended to protect teachers from the arbitrary and capricious action of school boards, which has become intolerable. It is not thought that the Bill does full justice to teachers, but as an admission of the existing evil and a concession to the teachers' demands it is commended. On these grounds the Edinburgh and other School Boards have agreed to petition in its favor.

FRANCE.—*The Education Act.*—The new French Education Act is pronounced by English journals the most sweeping educational measure ever passed in any country. The "Times" calls attention to the fact that the entire population of France falls under its jurisdiction, and adds: "An attempt, such as is about to be made (without doubt successfully) in France, to compel little children taught by private tutors, or by their fathers and mothers, to render an account of their literary proficiency, with a penalty on the dunces of being dispatched to school, would, if extended to England, provoke something like a rebellion." The interest with which the Act is regarded abroad is only less than the excitement it occasions in France. By opponents of the Republicans it is styled the "Atheistic Education Act." It has created division in the ranks of the Bonapartists, only thirteen of the forty Bonapartist Deputies having signed the protest against its secular features, drawn up by Bishop Freppel and his fellow-Legitimists. The Legitimists are themselves divided as to how they are to deal with the Act. Mayors being ex-officio chairmen of the School Boards, their refusal to act would involve their resignation or dismission. The Bishops are, one after the other, advising conditional submission to the Act. Cardinal Guibert, Archbishop of Paris, in a circular to monks and nuns engaged in primary schools, advises them to make the best of the Act. He thinks that if the provisions of the Act debarred teachers from all participation in religious teaching they could not retain their posts. He construes the law, however, as simply making religious instruction no longer compulsory, and argues that it does not prohibit prayer on opening school, or the placing of religious symbols on the walls. It is difficult to see exactly how the services of teachers belonging to religious orders are to be dispensed with. Of the 110,709 teachers now employed in the elementary schools, 46,684 (9,468 males and 37,216 females) belong to the interdicted orders.

From the report of the Minister of Public Instruction upon primary education in 1880–81, it appears that the total number of schools at the end of the school year (1880–81) was 74,441, an increase of 677 (viz., 651 public and 26 private) over the number reported in 1879–80. The lay schools had increased by 1,190, and the religious schools decreased by 539. The number of teachers had increased by 2,890; viz., 1,228 males and 1,662 females. The total number of pupils in primary schools was 5,049,363 in 1880–81, as against 4,949,591 in 1879–80. There were still 231,989 children between six and thirteen years of age who attended no school. The number of *Salles d'asile* was 4,870, an increase of 215; the number of teachers in the same, 7,451; of pupils, 621,177. The number of school-libraries in 1880–81 was 25,913, an increase of 2,191 over the previous year.

Of the eighty-seven departments of France, all but six have established training-schools for masters. There are also two higher training-colleges in which the teachers for these normal schools are prepared. The estimate of the Ministry of Public Instruction for the year 1882 is, in round numbers, $17,150,000, including $3,170,000 contributed by the 87 departments; but it is expected that the former sum will have to be increased by from $4,000,000 to $5,000,000 for primary instruction, as the result of the law on gratuitous instruction of June 16, 1881. The estimate for fine arts, which are now under a separate administration, includes a sum of $70,000 for subventions to municipal schools for instruction in drawing. The estimate of the Ministry of Agriculture and Commerce includes $200,000 for veterinary schools, $404,000 for agricultural instruction, $373,000 for technical schools, and $43,000 for schools of forestry. Besides these sums there are very large amounts, recurring annually, disbursed by the State and the departments, and charged in various ways, for the erection and repairs of school-buildings for superior and secondary instruction, in addition to the sums noticed above. There are also sums charged in the budgets of other ministries for educational purposes, which cannot be readily separated from other branches of the service.

A statement of the estimates for education in certain representative municipalities gives for Paris a total of $3,956,500, not including the office expenses of the central administration nor the interest on money borrowed. After the budget was presented, $400,000 additional were voted for the erection of apprenticeship schools.

Next to the political and religious bearing of the recent Education Act, its provisions with reference to the introduction of manual work into ordinary elementary schools, and for the encouragement of higher elementary and trade instruction, attract most attention.

Technical Education.—On the 13th of March, 1880, the Prefect of the Seine appointed a Commission of Inspection in connection with the Municipal Apprenticeship School of the Boulevard de la Villette. The commission was composed of gentlemen whose authority on questions of technical education is undeniable. After seven months service they submitted a report. In this they take the ground that opposition to the formation of apprenticeship schools arises from ignorance or the spirit of routine. They emphasize the opinion that practical instruction, to be in earnest, cannot be independent of actual production; and they insist that apprentices of the third, and even of the second year, should, as far as possible, turn out objects that are of use.

A second sub-commission appointed by the Prefect of the Seine to report upon the establishment of apprenticeship schools in general, recommends that three apprenticeship schools for boys should be established in Paris for what are termed "parent industries." In addition a school for girls is recommended, which shall be not only an apprenticeship school but also one of domestic economy. Drawing is an important feature of the program proposed for all of these schools.

Physical Training.—Gymnastics is included in the program of primary education.

Rural Schools.—In all countries the condition of schools in the rural districts is becoming more and more the subject of attention. Mr. Ferry, in a letter of April 3d, calls the attention of the Prefects of the Departments of Moobihan and Vendée to evidences of ignorance in those districts. In the former 60 per cent. of the conscripts for the army, and the same proportion of persons presenting themselves at the *mairies* for marriage, cannot read nor write. In the latter 40 per cent. of the conscripts are illiterate. The villages in these departments are widely separated, and the schools so situated that hundreds of children must travel eight or ten miles daily to attend them. A number of communes in the two departments have voted appropriations to increase the number of schools, and the Minister of Public Instruction offers in addition subsidies of 600,000 and 1,000,000 francs.

PRUSSIA.—*Secondary Schools.*—The Prussian Minister of Public Instruction has prepared new plans of study for all classes of secondary institutions. Peculiar interest attaches to this action on account of the existing controversy with reference to classical and non-classical courses.

The institutions affected are: (1) Gymnasia, classical schools preparing for the University; (2) Real-gymnasia, secondary schools preparing for higher technical schools and for the faculties of philosophy in the universities; (3) Ober-Real-schules, non-classical secondary schools preparing for technical and commercial schools; (4) Higher burgher-schools, secondary schools preparing for industrial, lower technical, and commercial schools.

Gymnasia, Real-gymnasia, and Ober-Real-schules have each nine classes. Higher burgher-schools have six. The new programs have been made obligatory for the three lower classes from the beginning of the present school-year (Easter, 1882); they do not go into operation in the remaining classes until Easter, 1883. The character which it is proposed to impress upon these various institutions will be seen if we take the program for the Gymnasia and point out the differences between it and the others. For the Gymnasia the subjects of instruction are: Religion, German, Latin, Greek, French, history and geography, arithmetic and mathematics, natural history, physics, penmanship, drawing. In the course for Real-gymnasia, Greek is omitted and English and chemistry introduced. In the course for the Ober-Real-schule Latin and Greek are both omitted, and English and chemistry introduced. In the course for the higher burgher-schools, Latin, Greek, and physics are omitted, and English and natural philosophy introduced. The nnmber of hours per week allowed for French, arithmetic and mathematics, and physics is greater in the Real-gymnasia than in the Gymnasia, and the number allowed for Latin, less. In the Ober-Real-schules the time allowed for French, mathematics, and physics is longer than the same in either of the preceding classes, and the time for English longer than in the Real-gymnasia. In the higher burgher-schools more time is allowed for penmanship and natural history than in the other classes of institutions.

The Budget.—The Prussian educational budget for 1882–83 calls for an appropriation of 45,835,426 marks. Of this sum 20,053,849 marks are for elementary schools; 4,582,830 marks for secondary schools, and 5,913,224 marks for subsidies to universities.

NETHERLANDS.—The report of the Minister of Education for the Netherlands, just received at the Bureau of Education, presents the condition of education for 1880–81. Superior education is provided in three State universities,—Leyden, Utrecht, and Groningen,—and one municipal university at Amsterdam. The total of the students in the three former is 1150, in the latter 343. For secondary education there are 24 gymnasia and 5 progymnasia, with 316 professors and 1,730 students; 57 higher burgher-schools, with 4,182 students, and 12 high schools for girls, with 929 students. The Agricultural School at Wageningen numbers 41 male and 10 female students. The Royal Polytechnic School has 362 students, 12 of whom are females. There are 11 naval schools. The total number of primary schools is 3,880; viz., 2,575 ungraded and 1,305 graded. Of these 2,771 are public schools, and 99 private schools receiving subsidies. The number of teachers is 10,313, and the number of pupils 544,559. This leaves 27,300 children between the ages of six and twelve who do not attend school. For the training of teachers there are seven State normal schools. The total government expenditure for primary education for the year (1880–81) is given as 2,377,295 florins.

GERMANY.—*Primary Education.*—Since the recent publication of the estimates for education, the government has demanded the creation of a new division which will be specially devoted to primary instruction. The Commission of the Budget has resisted the proposition on account of the increased expense which it imposes, but it is regarded as probable that the Landstag will accord what the commission refused.

SCIENCE.

Prof. Lionel S. Beale, the distinguished microscopist, in a recent lecture on "Modern Scientific Thought" says: "I would draw attention to the declaration again and again repeated, and now taught even to children, that the living and non-living differ only in degree; that the living has been evolved by degrees from the non-living, and the latter passes by gradations toward the former state. No one has produced any evidence in proof of these conclusions, which are, in fact, dictatorial assertions only; and no specimen of any kind of matter which is actually passing from the non-living to the living state, or which can be shown to establish any connection between these absolutely different conditions of matter, has been or can be at this time brought forward. It is not only one or two of the positions assumed by the materialist that are open to doubt or objection. Facts completely controvert all materialistic views which have been brought forward." . . . . Referring to nature as explained by the materialist, he says: "A nature which was really a blind, insatiable, irresistible fate, falsely called law, destitute of intelligence and reason, devoid of mercy and justice, is the nature held up for our admiration with the consoling assurance of dictatorial authority that it sprang from chaos in obedience to everlasting self-originating (?) law, and that it will return to chaos, in obedience to the same, — all life, all work, and thought being but the undulations of cosmic nebulosity, and dependent upon the never-ceasing gyrations of infinite, everlasting atoms, as they bound through the ages from void to void. I believe all materialistic doctrines, vary as they may in detail, will be found to agree in accepting as a truth the monstrous assumption that the living and non-living are one, as a watch or wind-mill. Surely this is the dullest, the narrowest, the most superficial of all creeds."

Before the Royal Horticultural Society, April 25, the topic was "Fertilization of Hoya." Mr. W. G. Smith exhibited flowers with flies attached to the glutinous disks of the pollen-masses. The highly fragrant Hoya is very attractive to insects which are necessary for the fertilization of this plant. The pollinia are concealed, with the exception of dark viscid disks. When an insect alights on the flowers, at least one foot is caught by one of the fine glutinous disks. In its effort to escape two or three, or even four other feet are almost sure to get similarly caught. The insect thus tries with all its power to free its limbs. If successful the pollen-masses are withdrawn out of the pouches by the feet. The basal appendages of each pair of pollinia are elastic, and while in the pouch they are extended like a spring, but the instant the masses are withdrawn the spring closes and the two masses quickly cross each other and tightly hold the insect's claws. If the insect is weak it cannot withdraw its legs, and so perishes on the flower; but if strong, it flies away with one to five pairs of pollinia clasped around its feet. Sometimes an insect breaks part of its leg off in trying to escape. The five stigmas are not ready to receive the pollen at the time it is mature, therefore it is only when the insect re-alights on some neighboring Hoya-flower in a more advanced stage of growth, that cross-fertilization takes place by its treading upon exposed stigmas.

RESEARCHES ON OZONE: *M. Mailfert.*—It is already known that sulphur is converted into sulphuric acid by ozone. If both are perfectly dry, no sulphuric acid is produced; but if the reaction takes place in the presence of water, sulphuric acid is obtained. If an alkali is present, a sulphate is formed. With selenium and tellurium, in the presence of water, ozone likewise gives selenic and telluric acids. Neither selenious nor tellurious acid is formed. Most, if not all, sulphides are attacked more or less rapidly by ozone. The sulphides of copper, antimony, zinc, and cadmium, as well as the alkaline and alkaline-earthy sulphides, yield sulphates. Nickle and cobalt sulphides are first converted into sulphates, but on continuing the reaction there is a formation of peroxides, and a part of the sulphuric acid is set free. Gold sulphuride gives a precipitate of metallic gold and sulphuric acid. Platinum, silver, and bismuth sulphides likewise give free sulphuric acid. Mercury sulphides are only slowly attacked by ozone. Manganese, palladium, and lead sulphides are converted into peroxides, and all the sulphur into free sulphuric acid.

Formene and ethylene are converted into carbonic, formic and acetic acids. Acetylene yields carbonic and formic acids, but not acetic acid. Amylene gives carbonic, butyric, and valerianic acids. The formic and and acetic acids, if present at all, are found in small proportions. Benzol and toluol yield carbonic, formic, acetic, and probably other acids of the fatty series. Benzol gives a dark brown solid, and toluol a brown syrupy liquid.

PROF. PIAZZI SMYTH, astronomer-royal for Scotland, read a paper on some points in the meteorology of Madeira, both absolute and comparative. By a careful comparison of the mean monthly temperature, and the mean daily range, during the months of June and July at Madeira and Lisbon, it appeared that the temperature at the former was markedly more equable. A like comparison was also instituted for the corresponding annual variations at Madeira, Lisbon, Jerusalem and Scotland, and the same wonderful equableness was shown to exist. Observations with the wet and dry bulb thermometer, and of the "rain-band," proved the climate of Madeira to be at the same time remarkably humid, which at once explains its cold summers and warm winters. This striking humidity the author traced to the influence of the gulf stream, a branch of which trends south from the Bay of Biscay past the coast of Portugal.

That the ocean-waters around Madeira are peculiarly warm was demonstrated by the late Sir Wyville Thompson in the "Challenger" expedition.

The abundant presence of watery vapor in the atmosphere also seems to have a marked influence upon the flora and fauna, which are very different rom what would be expected when latitude alone is considered. — *Royal Society of Edinburgh.*

PROF. BRUCKE has constructed an artificial blue sky by dropping a spirituous solution of rosin into water until the liquid becomes turbid and milky. When a blackboard is placed behind the glass containing this turbid solution, and light is thrown upon the liquid obliquely from above, it assumes the aspect of a clear, blue sky. Prof. Helmholtz, very unpoetically and almost irreverently, speaks of a blue eye as simply an eye with turbid humors. Prof. Tyndall, in following up these investigations, shows that an artificial blue sky may be produced by throwing a strong beam of light upon certain kinds of gases contained in long glass tubes. One portion of the gas is suddenly precipitated as a delicate cloud capable of reflecting the blue waves. The reflected light is polarized in a direction perpendicular to the path of the illuminating beam.

DATA continue to be accumulated, showing more definitely that there exists a close connection between the structure of molecules and the physical properties of the substances composed of these molecules. Pawlewski has recently published a short account of his researches on the "critical temperatures" of liquid compounds. He states that the critical temperatures of isomeric ethers are identical, or very nearly so ; that isomers containing doubly-linked carbon atoms have a higher critical temperature than those in the molecules of which carbon is singly linked. — *Berichte*, xv., 460.

A SIMPLE barometer may be made of a glass tube about 7 inches long, and about two-thirds of an inch in diameter. Heat one end and draw it out to a point, leaving an orifice about $\frac{1}{100}$ to $\frac{1}{80}$ of an inch in diameter. Fill the tube about half full of distilled water and cork the top with rubber. Low barometer, and rain, is indicated by a drop of water hanging to the end of the tube. When the barometric pressure rises the drop disappears, and a bubble of air may sometimes be seen entering the narrow opening.

IN continuance of his experiments on the effect of pressure on chemical changes, Spring states that he has prepared Wood's alloy (melting at 65°) by compressing at 75,000 atmospheres, iron-filings, bismuth, cadmium, and tin, in proper proportions. He has also obtained Rose's alloy (lead, bismuth, and tin), and also brass, by pressure of the constituent metals. — *Berichte*, xv., 595.

No mineral has any effect upon the tubercle-bacillæ discovered by Dr. Koch, the ectoderm being impenetrable by sulphuric or nitric acid. Alkaline solutions, however, soon become diffused throughout the interior of these parasites and rapidly destroy them, — a fact that may prove of great practical importance in the treatment of consumption.

Although W. P. Wilson employed methods of analysis which would detect one-tenth milligramme of carbonic acid, there was not discovered a measurable difference in the amount of carbonic-acid gas given off in the respiration of plants exposed to light or kept in the dark, in ordinary air, or in hydrogen gas.

As the result of an extended series of observations on the structure of metals, Kalischer (Berichte, xv., 702) concludes that most of the metals are naturally crystalline, and that when the crystalline structure has been lost by mechanical treatment it can, in most cases, be restored by the action of heat.

Dr. C. Setterberg has prepared metallic cæsium by electrolysis of cyanide of cæsium and barium. The metal is silver-white, very soft, ductile, specific gravity 1.88, melts at 29.5 C. Takes fire spontaneously in the air, and if thrown upon water burns like potassium and verbidium.

Very small insects may be preserved by fastening them with gum to thin microscopic-slide covers; and then fastening the cover to a piece of cardboard supported by a pin. The upper and under sides of the specimen can then be examined.

MM. Hautefeuille and Chapin claim that by compressing, at 125 atmospheres, a mixture of oxygen and ozone in a bent tube, which was cooled by a jet of ethylene, they obtained ozone in liquid drops of a dark indigo-blue color.

The electric light affects the colors of cloths as well as paintings in the same way, but not so quickly, as sunlight.

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